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Service Manual

HP OmniBook 2000, 5500, and 5700

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Introduction

This document provides reference information for the HP OmniBook 2000, 5500, and 5700. It is intended to be used by HP-qualified service personnel to help with the installation, servicing, and repair of these HP OmniBook PCs.

It is a self-paced guide designed to train you to install, configure, and repair the OmniBook Notebook PC. You can follow it without having any equipment available.

The following table lists additional sources where supplementary information can be obtained.

Table 1 - Additional Resources

Resource	Number/Address	Comments
HP External Web	http://www.hp.com/go/omnibook	No usage restriction (http://www2.hp.com/go/omnibook provides a European mirror)
HP-MCD Internal Web	http://webmcd.cv.hp.com	Restricted to HP intranet access only
America Online	Keyword: HP	Call (800) 827-6364 for membership within the US
CompuServe[1]	GO HP	Call (800) 524-3388 for membership within the US
HP Bulletin Board Service[2]	(208) 344-1691 (US only)	Refer to the latest Product Support Plan for non-US BBS numbers
HP First (automated fax)	(800) 333-1917	US and Canada
	(801) 344-4809	Outside US and Canada
	(800) 544-9976	Reseller support number (enter outlet id number)
HP Support Assist CD-ROM	(800) 457-1762	US and Canada
	(801) 431-1587	Outside US and Canada
HP MCD Service Engineer	svc-eng_mcd@om.cv.hp.com	Email address for service related questions and issues

[1] Baud rates = 300-28.8; Parity = E; Data bits = 7; Stop bits = 1
[2] Baud rates = 300-28.8; Parity = N, Data bits = 8; Stop bits = 1

Part 1

Product Overview

- What's New
- Product Features
- Product at a Glance
- Product Comparisons

What's New

The OmniBook 2000 is the newest OmniBook in the Desktop-to-Go Notebook PC series. It has many of the same features as the OmniBook 5700 while still maintaining a lower price. The following list compares and contrasts the OmniBook 2000 and OmniBook 5700.

Feature	OmniBook 2000	OmniBook 5700
Processor	133-MHz Intel Pentium® with and without MMX™ technology	Intel Pentium® P55C 150 MHz and 166 MHz with MMX™ technology
Cache	no L2 cache 16-KB or 32-KB L1 cache	512-KB L2 pipeline-burst synchronous cache 32-KB L1 cache
Memory	expandable to 128MB	expandable to 128MB
Display	12.1" TFT SVGA up to 16.7M colors 12.1" DSTN SVGA up to 64K colors	12.1" TFT XGA and 12.1" TFT SVGA up to 16.7M colors
Video	C&T 65554 64-bit accelerated graphics processor with 2M video RAM and Zoom Video enabled	C&T 65554 64-bit accelerated graphics processor with 2M video RAM and Zoom Video enabled
PC Card	Cardbus support	Cardbus support
System Chipset	Opti Viper-N+	Opti Viper-N+
Desktop Management Interface	Pre-installed DMI 1.1 software	Pre-installed DMI 1.1 software
Advanced Power Management	APM 1.2	APM 1.2
Off States	On, suspend, resume, hibernate and full off	On, suspend, resume, hibernate and full off

Product Features

The first two illustrations (Figure 1 and Figure 2) point out the key external features of the OmniBook 2000 and 5700. The second two illustrations (Figure 3 and Figure 4) point out the key external features of the OmniBook 5500. Figure 5 on page 14 shows the accessories that can be used in the center bay of the OmniBook 2000, 5500, and 5700.

Figure 1 - OmniBook 2000 and 5700 External Features

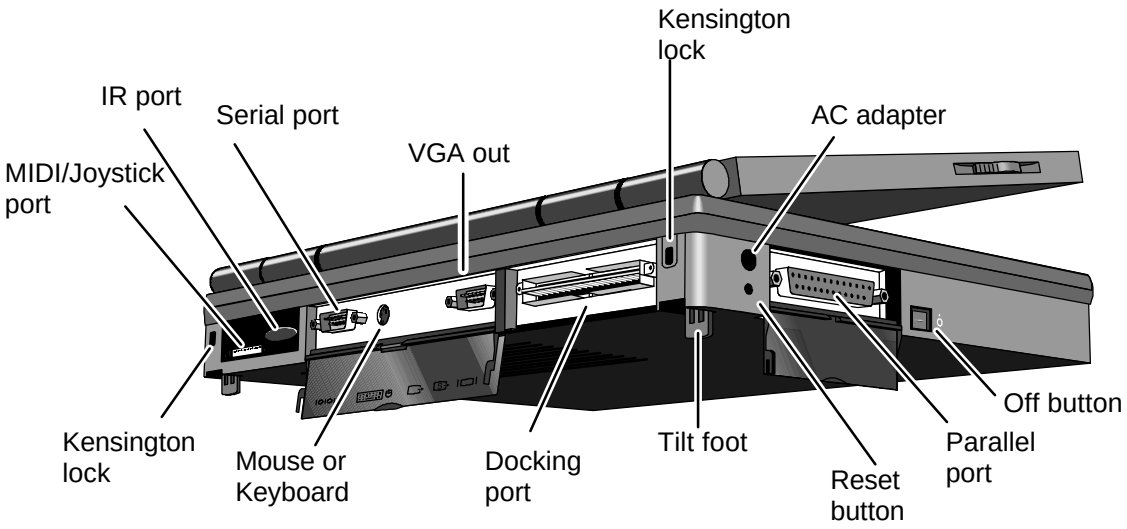

Figure 2 - OmniBook 2000 and 5700 External Features - continued

Figure 3 - OmniBook 5500 External Features

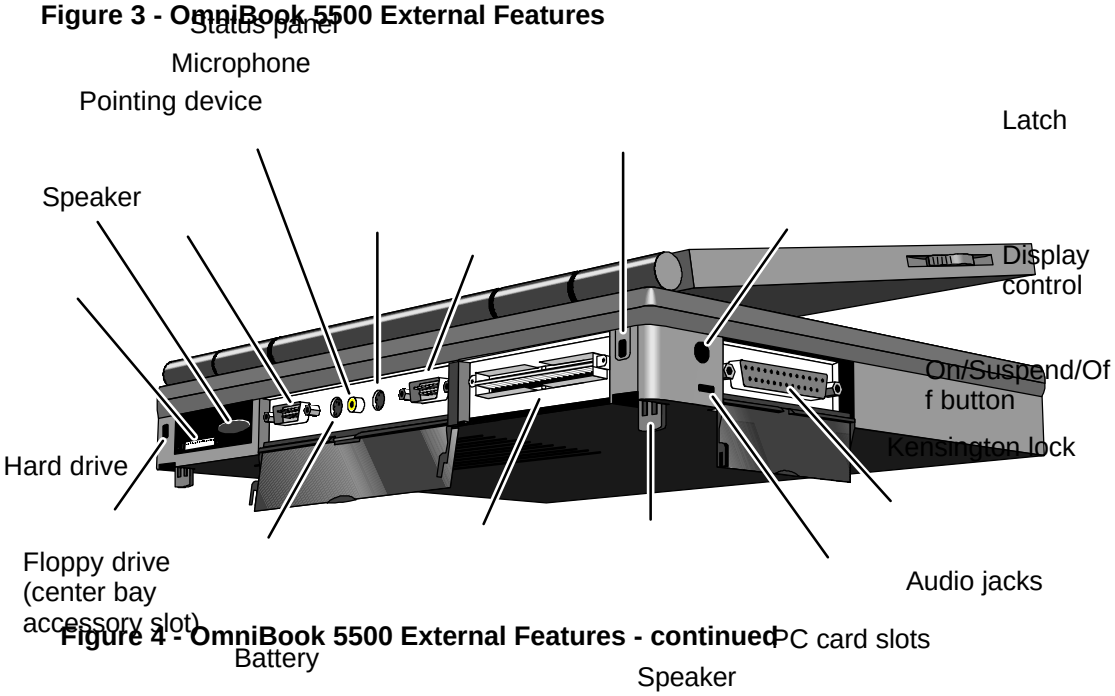

Figure 4 - OmniBook 5500 External Features - continued

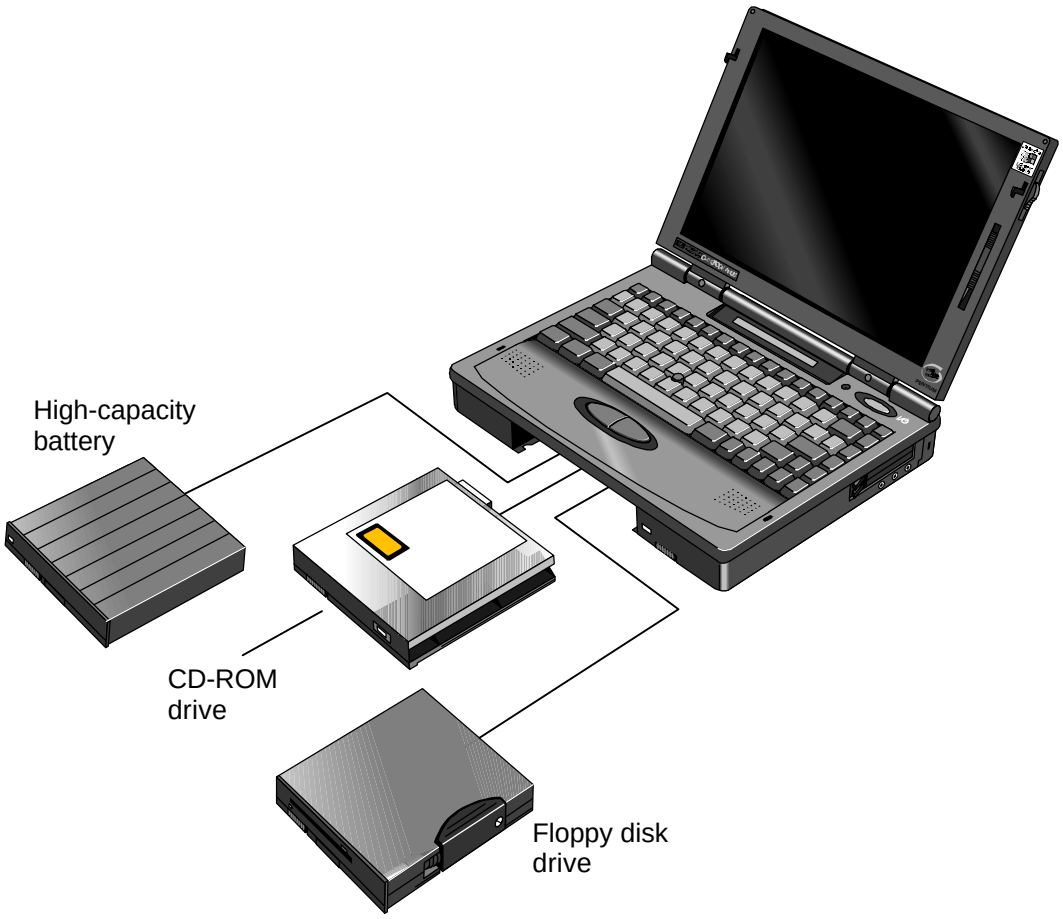

Figure 5 - OmniBook 2000, 5500, and 5700 Center Bay Modules

Product at a Glance

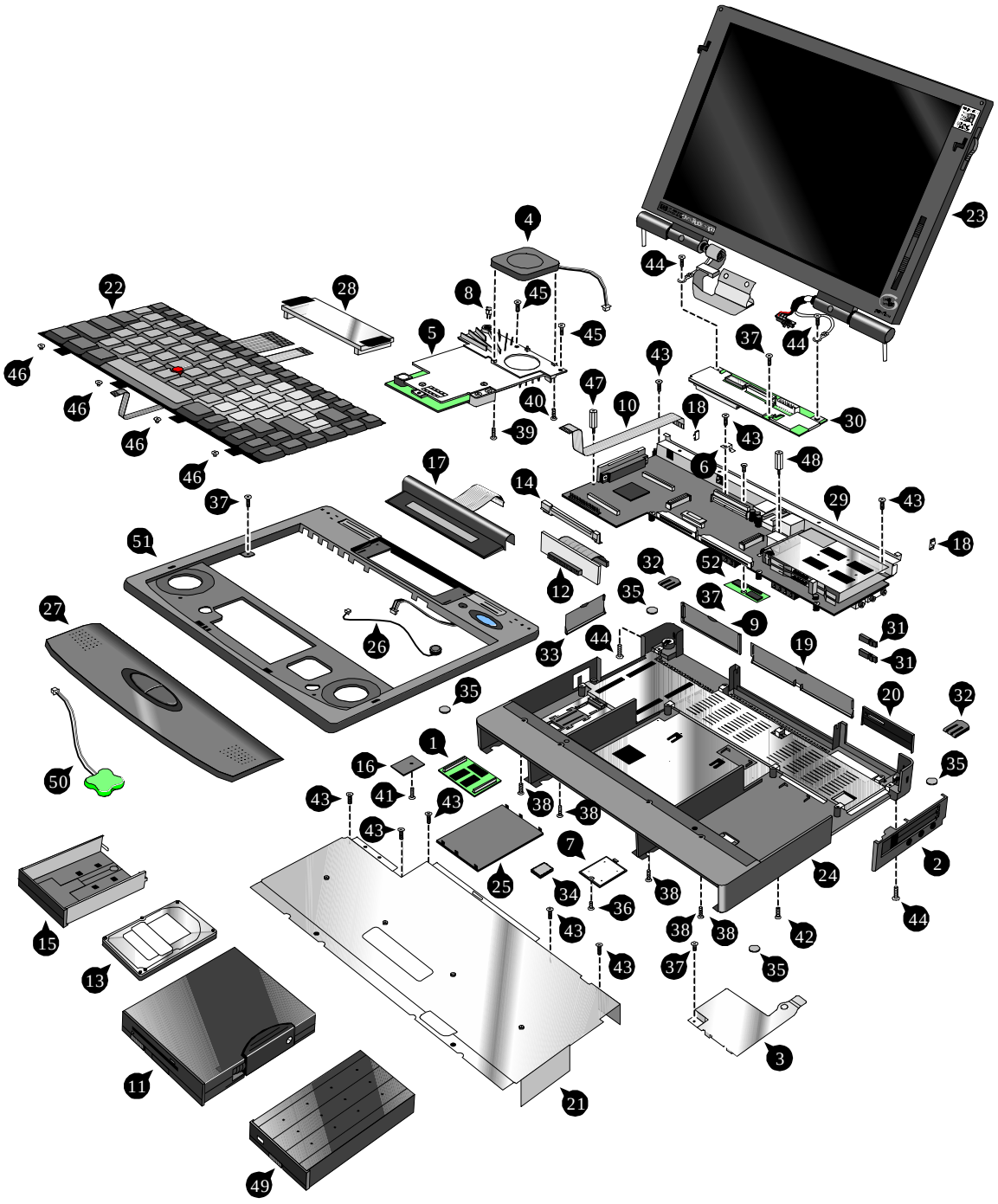

Figure 6 - OmniBook 2000 and 5700 Exploded Diagram

Table 2 - OmniBook 2000 and 5700 Parts Identification

	Description	*Part Number*	*Exchange Part #*	*User Replace.*	*OB5700*	*OB2000*
1	Memory Module					
	8MB RAM	F1134-60901	F1134-69001	Y	✓	✓
	16MB RAM	F1135-60901	F1135-69001	Y	✓	✓
	32MB RAM	F1136-60901	F1136-69001	Y	✓	✓
	64MB RAM	F1335-60901	F1335-69001	Y	✓	✓
2	Bezel	F1320-60958		N	✓	✓
3	Card Bus Bracket	F1350-60916		N	✓	✓
4	CPU Fan	F1350-60906		N	✓	✓
5	CPU Module					
	CPU Module/150C	F1350-60904	F1350-69004	N	✓	
	CPU Module/166C	F1350-60905	F1350-69005	N	✓	
	CPU Module/P54C-133	F1371-60908	F1371-69008	N		✓
	CPU Module/P55C-133 (MMX)	F1371-60909	F1371-69009	N		✓
6	Dock Grounding Spring Plate	F1320-60962		N	✓	✓
7	Door, Flash BIOS	F1371-60901		Y		✓
8	EMI Spring for LCD Hinge	F1350-60913		N	✓	✓
9	Expansion Door	F1125-60920		Y	✓	✓
10	FFC Cable T/B to M/B 10 PIN	F1320-60950		N	✓	✓
11	3.5" floppy disk drive	F1195-60901		Y	✓	✓
12	HDD-FPC Flex	F1320-60961		N	✓	✓
13	Hard Disk Drive					
	HDD Drive 1.44GB	F1375-60901	F1375-69001	Y		✓
	HDD Drive 2.0GB	F1339-60901	F1339-69001	Y	✓	✓
	HDD Drive 3.0GB	F1348-60901	F1348-69001	Y	✓	
14	HDD PCB Bracket	F1320-60965		N	✓	✓
15	HDD Plastic Kit	F1350-60920		Y	✓	✓
16	HDD Security Cover	F1320-40001		Y	✓	✓
17	Icon Assembly	F1320-60918		N	✓	✓
18	I/O Bracket Grounding Clip	F1350-60912		N	✓	✓
19	I/O Door	F1350-60910		Y	✓	✓
20	IR Lens	F1320-60952		N	✓	✓
21	KBD Shielding Plate	F1320-60960		N	✓	✓
22	Keyboard	*		N	✓	✓
23	LCD Display					
	LCD Assy 12.1 TFT/X	F1350-69002	F1350-69002	N	✓	
	LCD Assy/SMG 12.1 TFT/S	F1320-69094	F1320-69094	N	✓	✓
	LCD Assy-12.1" DSTN	F1371-60906	F1371-69006	N		✓
24	Lower Chassis Case					
	Lower Chassis Case - 5700	F1350-60914		N	✓	
	Lower Chassis Case - 2000	F1371-60905		N		✓
25	Memory Cover Door	F1320-60927		Y	✓	✓
26	Microphone Assembly	F1081-60946		N	✓	✓
27	Palmrest2 Assembly	F1320-60986		N	✓	✓
28	PCA - DC Power Supply	F1350-60909		N	✓	✓
29	PCA PB-586/IO Bracket	F1350-60901	F1350-69001	N	✓	✓
30	PCA PB-Icon Board					
	PCA PB-ICON/SVGA	F1350-60907		N	✓	✓
	PCA PB-ICON/XGA	F1350-60908		N	✓	
	PCA PB-ICON/DSTN	F1371-60911		N		✓
31	PCMCIA Button Assembly	F1320-60949		Y	✓	✓
32	Plastic Foot	F1320-60929		Y	✓	✓
33	Printer Port Door	F1125-60918		Y	✓	✓
34	Prog Flash IC, BIOS	F1371-60903		N	✓	✓
35	Rubber Foot	F1320-60957		Y	✓	✓
36	Screw - BIOS Door	F1371-60902		Y		✓
37	Screw - CPU M2 X 4L	F1320-60963		N	✓	✓
38	Screw - CPU M2.6 X 6L	F1081-60942		N	✓	✓
39	Screw - FTB M2.6x10L	F1350-60925		N	✓	✓
40	Screw - FTB M2.6x8L	F1350-60926		N	✓	✓
41	Screw - HDD Door	F1320-60919		Y	✓	✓
42	Screw - ISOF M2.6x6L	F1350-60923		N	✓	✓
43	Screw - ISOP M2x6L Nyl	F1350-60924		N	✓	✓
44	Screw - ISOP M2.6X8L NYLOK	F1081-60939		N	✓	✓
45	Screw - ISOT M2.6x4L	F1350-60927		N	✓	✓
46	Screw - Keyboard	F1320-60920		N	✓	✓
47	Standoff-M2x11.75 Nyl	F1350-60928		N	✓	✓
48	Standoff-M2x15L Nyl	F1350-60929		N	✓	✓
49	Std Li-Ion Battery	F1193-60902		Y	✓	✓
50	Sub Batt - NiMHd	F1350-60921		N	✓	✓
51	Upper Chassis Case	F1350-60915		N	✓	✓
52	Video RAM	F1350-60922		N	✓	✓

Note, this is a partial parts list. For a complete parts list, please refer to Appendix E or the Product Support Plan.
*For a complete listing of available localized keyboards, refer to Appendix E or the Product Support Plan.

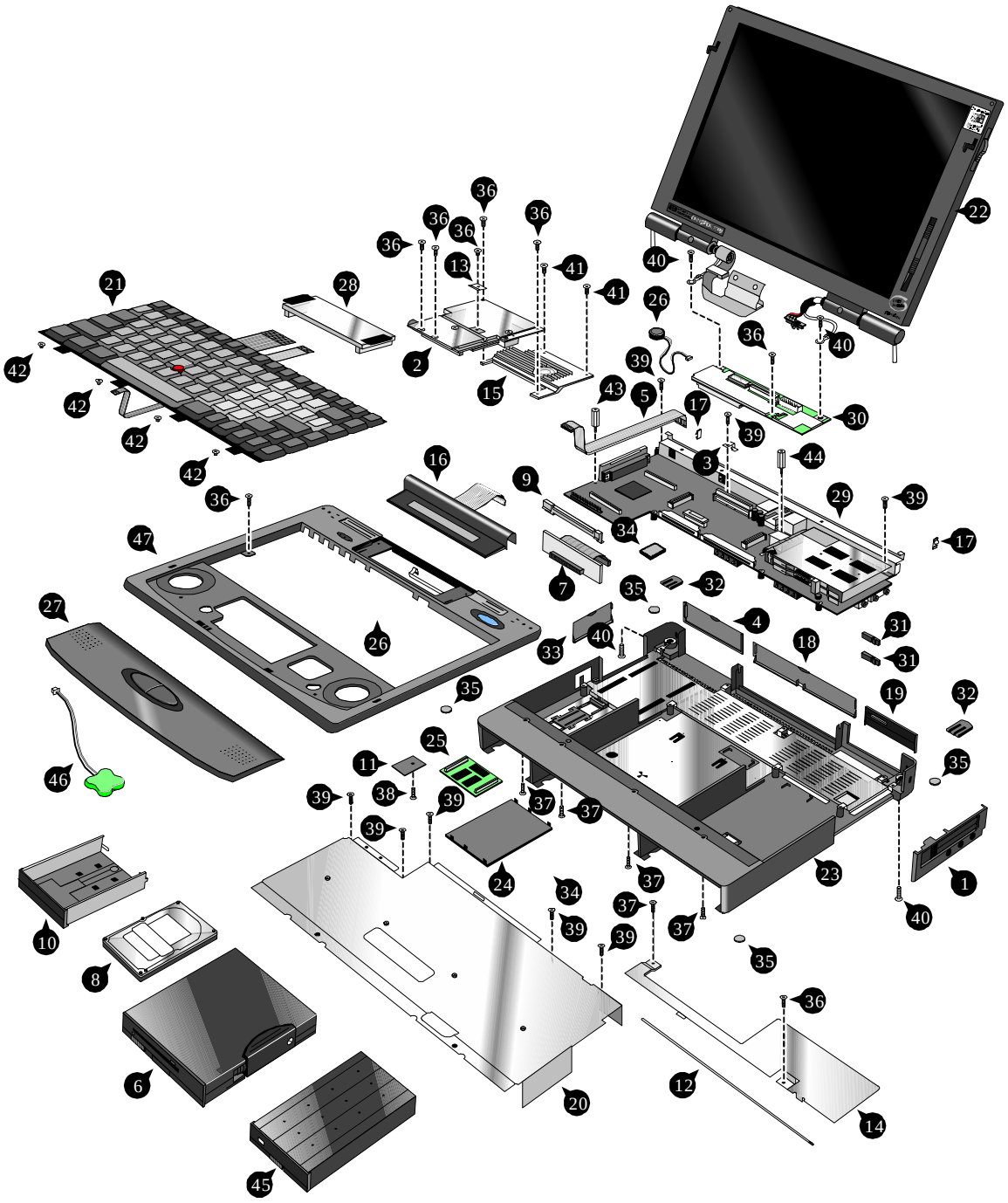

Figure 7 - OmniBook 5500 Exploded Diagram

Table 3 - OmniBook 5500 Parts Identification

	Description	*Part Number*	*Exchange Part #*	*User Replace.*
1	Bezel	F1320-60958		N
2	CPU Module			
	CPU Module/100C	F1320-60901	F1320-69001	N
	CPU Module/120C	F1320-60902	F1320-69002	N
	CPU Module/133C	F1320-60903	F1320-69003	N
3	Dock Grounding Spring Plate	F1320-60962		N
4	Expansion Door	F1125-60920		Y
5	FFC Cable T/B to M/B 10 PIN	F1320-60950		N
6	3.5" floppy disk drive	F1195-60901		Y
7	HDD-FPC Flex	F1320-60961		N
8	Hard Disk Drive			
	HDD Drive 810MB	F1191-60901	F1191-69001	Y
	HDD Drive 1.35GB	F1192-60901	F1192-69001	Y
	HDD Drive 2.0GB	F1339-60901	F1339-69001	Y
9	HDD PCB Bracket	F1320-60965		N
10	HDD Plastic Kit	F1320-60947		Y
11	HDD Security Cover	F1320-40001		Y
12	Heat Pipe	F1320-60964		N
13	Heat Pipe Bracket	F1320-60972		N
14	Heat Pipe Spreader	F1320-60921		N
15	Heat Sink	F1320-60954		N
16	Icon Assembly	F1320-60918		N
17	I/O Bracket Grounding Clip	F1350-60912		N
18	I/O Door	F1320-60928		Y
19	IR Lens	F1320-60952		N
20	KBD Shielding Plate	F1320-60960		N
21	Keyboard	*		N
22	LCD Display			
	LCD Assy 10.4” TST/S	F1320-60904	F1320-69004	N
	LCD Assy 11.3” DSTN/S	F1320-60905	F1320-69005	N
	LCD Assy 12.1" TFT/S	F1320-60906	F1320-69006	N
	LCD Assy-SMG 12.1" TFT/S	F1320-60994	F1320-69094	N
23	Lower Chassis Case	F1320-60930		N
24	Memory Cover Door	F1320-60927		Y
25	Memory Module			
	8MB RAM	F1134-60901	F1134-69001	Y
	16MB RAM	F1135-60901	F1135-69001	Y
	32MB RAM	F1136-60901	F1136-69001	Y
26	Microphone Assembly	F1081-60946		N
27	Palmrest2 Assembly	F1320-60986		N
28	PCA - DC Power Supply	F1320-60925		N
29	PCA PB-586/IO Bracket	F1320-60926	F1320-69026	N
30	PCA PB-Icon Board			
	PCA PB-ICON	F1320-60924		N
	PCA PB-ICON/SMG	F1320-60993		N
31	PCMCIA Button Assembly	F1320-60949		Y
32	Plastic Foot	F1320-60929		Y
33	Printer Port Door	F1125-60918		Y
34	Prog Flash IC, BIOS	F1321-60907		N
35	Rubber Foot	F1320-60957		Y
36	Screw - CPU M2 X 4L	F1320-60963		N
37	Screw - CPU M2.6 X 6L	F1081-60942		N
38	Screw - HDD Door	F1320-60919		Y
39	Screw - ISOP M2.0x6.0L Nylok	F1350-60924		N
40	Screw - ISOP M2.6X8L Nylok	F1081-60939		N
41	Screw - M2.6x4.0L	F1350-60927		N
42	Screw - Keyboard	F1320-60920		N
43	Standoff-M2x11.75 Nyl	F1320-60951		N
44	Standoff-M2x15L Nyl	F1320-60955		N
45	Std Li-Ion Battery	F1193-60902		Y
46	Sub Battery 4.8v	F1081-60925		N
47	Upper Chassis Case	F1320-60931		N

Note, this is a partial parts list. For a complete parts list, please refer to Appendix E or the Product Support Plan.
*For a complete listing of available localized keyboards, refer to Appendix E or the Product Support Plan.

Product Comparisons

	HP OmniBook 5700	*HP OmniBook 5500*	*HP OmniBook 2000*
Size Closed	29.5 x 22.6 x 4.9 cm (11.6 x 8.9 x 1.93 in)	29.5 x 22.6 x 4.9 cm (11.6 x 8.9 x 1.93 in)	29.5 x 22.6 x 4.9 cm (11.6 x 8.9 x 1.93 in)
Weight	3.27 kg (7.2 lb)	3.4 kg (7.5 lb)	3.27 kg (7.2 lb)
Processor	166- or 150-MHz Intel Pentium® with MMX technology	100-, 120-, or 133-MHz Intel Pentium processor	133-MHz Intel Pentium with and without MMX technology
Bus Architecture	32-bit PCI bus	32-bit PCI bus	32-bit PCI bus
Cache	512-KB burst-synchronous L2 cache	256-KB external L2 cache	no L2 cache
Display Size	12.1-inch TFT	10.4- or 12.1-inch diagonal TFT 11.3-inch diagonal DSTN	12.1-inch diagonal TFT 12.1-inch diagonal DSTN
Display Resolution	XGA TFT 1024 x 768 x 64k colors SVGA TFT 800 x 600 x 16.7M colors	SVGA TFT 800 x 600 x 64K colors SVGA DSTN 800 X 600 X 256 colors	SVGA TFT 800 x 600 x 16.7M colors SVGA DSTN 800 x 600 x 64K colors
Video Bus	PCI local bus video	PCI local bus video	PCI local bus video
Video RAM	2-MB video RAM	1-MB video RAM	2-MB video RAM
VGA-out Support	XGA-out supports up to 1024 x 768 x 64k colors	XGA-out supports up to 1024 x 768 x 256 colors	XGA-out supports up to 1024 x 768 x 64k colors
Video Controller	Chips and Technology 65554 controller (64-bit)	Chips and Technology 65548 controller (32-bit)	Chips and Technology 65554 controller (64-bit)
Power	AC adapter 100 to 240 Vac (50 to 60 Hz) input; 12 Vdc, 3.3 A output	AC adapter 100 to 240 Vac (50 to 60 Hz) input; 12 Vdc, 3.3 A output	AC adapter 100 to 240 Vac (50 to 60 Hz) input; 12 Vdc, 3.3 A output
Battery Type	14.4-Vdc, 2.5-AH rechargeable Lithium-Ion battery Optional, 14.4-Vdc, 3.75-AH enhanced Lithium Ion battery	14.4-Vdc, 2.5-AH rechargeable Lithium-Ion battery Optional, 14.4-Vdc, 3.75-AH enhanced Lithium Ion battery	14.4-Vdc, 2.5-AH rechargeable Lithium-Ion battery Optional, 14.4-Vdc, 3.75-AH enhanced Lithium Ion battery
Battery Life	Up to 2.5 hours with one LiIon battery (enhanced LiIon battery adds up to 3.75 hours)	Up to 2.5 hours with one LiIon battery (enhanced LiIon battery adds up to 3.75 hours)	Up to 2.5 hours with one LiIon battery (enhanced LiIon battery adds up to 3.75 hours)
Recharge Rate	Battery recharges to high level in 4 hours using AC adapter while PC is on or off	Battery recharges to high level in 4 hours using AC adapter while PC is on or off	Battery recharges to high level in 4 hours using AC adapter while PC is on or off
Advanced Power Management	Instant-on maintains computer in ready-to-work state for weeks on a full charge; returns you to	Instant-on maintains computer in ready-to-work state for weeks on a full charge; returns you to your application or file	Instant-on maintains computer in ready-to-work state for weeks on a full charge; returns you to your application or file

	HP OmniBook 5700	*HP OmniBook 5500*	*HP OmniBook 2000*
	your application or file instantly 2-minute low-battery warning	instantly 2-minute low-battery warning	instantly 2-minute low-battery warning
Removable Modules	• Floppy disk drive internal/external (can be replaced with a second battery or CD ROM drive) • Hard disk drive • RAM • Battery	• Floppy disk drive internal/external (can be replaced with a second battery or CD ROM drive) • Hard disk drive • RAM • Battery	• Floppy disk drive internal/external (can be replaced with a second battery or CD ROM drive) • Hard disk drive • RAM • Battery
Hard Disk Drive	3.0-billion-byte or 2.0-billion-byte hard drives	810-MB, 1.35-GB, or 2.0GB hard disks	1.44-billion-byte or 2.0-billion-byte hard drives
Floppy Disk Drive	Internal 3.5-inch, 1.44-MB, standard; swaps with CD-ROM or enhanced battery; usable externally	Internal 3.5-inch, 1.44-MB, standard; swaps with CD-ROM or enhanced battery; usable externally	Internal 3.5-inch, 1.44-MB, standard; swaps with CD-ROM or enhanced battery; usable externally
CD-ROM Drive	Optional, internal, 10x	Optional, internal, 10x	Optional, internal, 10x
Memory	Self-refreshed FPM DRAM 16 or 32-MB models, expandable to 128 MB 8-, 16-, 32-, and 64-MB RAM modules available	Self-refreshed FPM DRAM 8 or 16-MB models, expandable to 64 MB 8-, 16-, and 32-MB RAM modules available	Self-refreshed FPM DRAM 16 or 32-MB models, expandable to 128 MB 8-, 16-, 32-, and 64-MB RAM modules available
Audio	16-bit with Sound Blaster™ Pro and MIDI support Stereo sound via two built-in speakers	16-bit with Sound Blaster Pro compatible and MIDI support Stereo sound via two built-in speakers	16-bit with Sound Blaster Pro and MIDI support Stereo sound via two built-in speakers
IO Ports	• 9-pin, 115,200-bps, RS-232 port • 25-pin bidirectional ECP/EPP parallel port • XGA-out (up to 1024 x 768 x 64K) • Fast-IR-IRDA compliant @ 4Mbps • Expansion bus connector • PS/2 keyboard/mouse port • Headphone/stereo-out port • Stereo-in and microphone ports • MIDI/joystick port	• 9-pin, 115,200 - b/s, RS-232 port • 25-pin bidirectional ECP/EPP parallel port • XGA-out (up to 1024 x 768 x 256) • Fast-IR-IRDA compliant @ 4Mbps • Expansion bus connector • NTSC/PAL video-out port (RCA and SVideo) • PS/2 keyboard/mouse port • Headphone/stereo-out port • Stereo-in and microphone ports • MIDI/joystick port	• 9-pin, 115,200-bps, RS-232 port • 25-pin bidirectional ECP/EPP parallel port • XGA-out (up to 1024 x 768 x 64K) • Fast-IR-IRDA compliant @ 4Mbps • Expansion bus connector • PS/2 keyboard/mouse port • Headphone/stereo-out port • Stereo-in and microphone ports • MIDI/joystick port
PCMCIA	One Type III PCMCIA slot (or use as two Type II slots) with 3.3-V or 5-V support Zoomed video support for lower slot CardBus support (both slots)	One Type III PCMCIA slot (or use as two Type II slots) with 3.3-V or 5-V support.	One Type III PCMCIA slot (or use as two Type II slots) with 3.3-V or 5-V support Zoomed video support for lower slot CardBus support (both slots)
Docking	Optional docking system with one PCI/ISA and one ISA slot,	Optional docking system with one PCI/ISA-and one ISA slot,	Optional docking system with one PCI/ISA-and one ISA slot,

	HP OmniBook 5700	*HP OmniBook 5500*	*HP OmniBook 2000*
	parallel, serial, XGA-out (up to 1024 x 768 x 64k), keyboard, PS/2 mouse, MIDI/joystick, audio and SCSI-2 ports. Optional port replicator with parallel, serial, video-out, keyboard, PS/2 mouse, MIDI/joystick, and audio ports	parallel, serial, XGA-out (up to 1024 x 768 x 256), keyboard, PS/2 mouse, MIDI/joystick, audio and SCSI-2 ports.	parallel, serial, XGA-out (up to 1024 x 768 x 64K), keyboard, PS/2 mouse, MIDI/joystick, audio, and SCSI-2 ports. Optional port replicator with parallel, serial, video-out, keyboard, PS/2 mouse, MIDI/joystick, and audio ports.
Pre-installed Software	Microsoft® Windows® for Workgroups 3.11 and MS-DOS® 6.22 co-loaded with Microsoft Windows 95* Windows 95-compatible Plug and Play BIOS Advanced Power Management 1.2 DMI 1.1 under Windows 95 with TopTools HP PIM and Financial Calculator On-line documentation	Microsoft Windows for Workgroups 3.11 and MS-DOS 6.22 co-loaded with Microsoft Windows 95* Windows 95-compatible Plug and Play BIOS Advanced Power Management 1.1 HP PIM and Financial Calculator On-line documentation	Microsoft® Windows® for Workgroups 3.11 and MS-DOS® 6.22 co-loaded with Microsoft Windows 95* Windows 95-compatible Plug and Play BIOS Advanced Power Management 1.2 DMI 1.1 under Windows 95 with TopTools HP PIM and Financial Calculator On-line documentation
Security Features	• 2-level password protection • Hardware-based hard drive password • Electronic serial number in CMOS accessible through DMI • PC ID (tattooing) • Kensington lock slots	• 2-level password protection • PC ID (tattooing) and serialization • Drive lock • Kensington lock slots	• 2-level password protection • Hardware-based hard drive password • Electronic serial number in CMOS accessible through DMI • PC ID (tattooing) • Kensington lock slots
Warranty	3-year return-to HP for repair (1-year on battery and accessories)	3-year return-to-HP for repair for premium models; 1-year return-to-HP for VL's (1-year on battery and accessories)	3-year return-to HP for repair (1-year on battery and accessories)

*(Note: Upon first boot, the end user must make a ONE-TIME selection between Windows 95 and Windows for Workgroups. Later, if the end user desires the rejected operating system, the end user will need to acquire and pay for such product as a separate transaction.)

Part 2

Troubleshooting

- Power-On Self-Test
- OmniBook Diagnostics
- Desktop Management Interface
- System Configuration Utility
- Troubleshooting Tips

Power-On Self-Test

The OmniBook 2000, 5500, and 5700 BIOS includes a Power-On Self-Test (POST) facility that tests a number of hardware and firmware items in the unit at each cold-start (BOOT or RESET).

The OmniBook self-test alone should not be used to diagnose a hardware problem. If the self-test results are absolutely clear and repeatable, confirm the results with at least two other non-self-test troubleshooting tools.

Within POST, there are three kinds of messages:

- Error Messages – These messages appear when there is a failure in hardware, software, or firmware.
- Informational Messages – These messages provide information to the user but require no action.
- Beep Codes – This kind of warning sounds when POST errors occur and the screen is not yet available.

Beep Codes

These multiple beep codes indicate a failure in a simple test of:

- a portion of base memory
- flash BIOS checksum
- a portion of conventional memory
- a portion of extended memory

If the unit fails to boot

- all accessories are removed, including:
  memory, floppy drive, docking station, modems and other PC Cards, printers, external displays, pointing devices, and keyboard
- clean AC power is provided (no "chained" battery chargers or auto adapters), and press reset.

If the unit still fails to boot, it requires service.

Beep codes are used to identify a POST error that occurs when the screen is not available. Once the screen is operating, diagnostic messages are reported to the screen. There are beep codes for both fatal and nonfatal system board errors.

Table 4 - POST Beep Codes

Beep Code	Description
S-S-S-P-S-S-L-P	The DMA page registers are faulty.
S-S-S-P-S-L-S-P	The refresh circuitry is faulty
S-S-S-P-S-L-L-P	The ROM checksum is incorrect
S-S-S-P-L-S-S-P	The CMOS RAM test failed
S-S-S-P-L-S-L-P	The DMA controller is faulty
S-S-S-P-L-L-S-P	The interrupt controller failed
S-S-S-P-L-L-L-P	The 8042 keyboard controller failed
S-S-L-P-S-S-S-P	No video adapter was found
S-S-L-P-S-S-L-P	No RAM installed. No message is displayed.

Display Codes

There are a number of Power On Self Test (POST) tests that are performed after the Beep Code tests. Failure of one or more of these tests will result in a displayed failure code (such as 03044). It is extremely important not to interpret a failure code immediately as a hardware failure. The failure should be confirmed with a clean boot. A clean boot is defined as pressing the reset button after removing all accessories (including memory, floppy drive, modems, PC cards, and printers) and providing a reliable power source. Note, make sure the display is adjusted to be visible.

Table 5 - POST Display Codes

Message	Possible Cause
CLOCK NOT TICKING CORRECTLY	The real time clock is not ticking.
COLOR/MONO SWITCH INCORRECT	The COLOR/MONO switch on the system board is incorrect for the installed hardware.
CMOS CHECKSUM INVALID - RUN SCU	CMOS RAM information has been corrupted and needs to be reinitialized via the System Configuration Utility.
CMOS FAILURE - RUN SCU	CMOS RAM has lost power and needs to be reinitialized via the System Configuration Utility.
FLOPPY CONTROLLER FAILED	The floppy controller failed to respond to the reset command. Power down the system and check all appropriate connections. It the floppy controller continues to fail, you may need to replace it.
FLOPPY DISK TRACK 0 FAILED	The floppy drive cannot read track 0 of the floppy disk in the drive. Try another diskette. If the problem persists, you may need to replace the floppy drive.
FLOPPY INFORMATION INVALID - RUN SCU	The drive parameters stored in CMOS do not match the floppy drives detected in the system.
HARD DISK CONTROLLER ERROR	The hard disk controller failed to respond to the reset command. Possible solutions: 1) Check the drive parameters. 2) Power down the system and check all appropriate connections. If the problem persists, you may need to replace the hard disk controller.
HARDWARE INFO DOES NOT MATCH VIDEO CARD - RUN SCU	The video adapter type specified in CMOS RAM does not match the installed hardware.
KEYBOARD CONTROLLER FAILURE	The keyboard failed the self-test command. Check to see if the keyboard controller is properly installed. If the problem continues, replace the controller.
KEYBOARD FAILURE	The keyboard failed to respond to the RESET ID Command.
MACHINE IS LOCKED - TURN KEY	The system will not continue the boot

Message	Possible Cause
	sequence until you insert the key into the key lock and turn it.
NO BOOTABLE FLOPPY DRIVE 0 INSTALLED	No bootable floppy drive was detected. Possible solutions: 1) Power down the system and check all appropriate connections, cables, etc. 2) In configurations where no floppy drive is installed, run System Configuration Utility and make sure the diskette drive configuration item is set to "None". 3) Replace the diskette drive if necessary.
NO INTERRUPTS FROM TIMER 0	The periodic timer interrupt is not occurring.
RAM PARITY ERROR AT LOCATION xxxx	A RAM parity error occurred at the specified (hexadecimal) location.
ROM AT xxxx (LENGTH YYYY) WITH NON-ZERO CHECKSUM (zz)	An illegal adapter ROM was located at the specified address. An external adapter (such as a video card) may be causing a conflict.
TIME/DATE CORRUPT - RUN SCU	The time and date stored in the real time clock have been corrupted, possibly by a power loss.
UNEXPECTED AMOUNT OF MEMORY - RUN SCU	The amount of memory detected by POST does not match the amount specified in CMOS RAM.
CMOS RAM TEST FAILED	A walking built test of CMOS RAM locations 0E (Hex) - 3F (Hex) failed.
DMA CONTROLLER FAULTY	A sequential read/write of the transfer count and transfer address registers within the primary and secondary DMA controllers failed.
FAULTY DMA PAGE REGISTERS	A walking bit read/write of the 16 DMA controller page registers starting at location 80 Hex failed.
FAULTY REFRESH CIRCUIT	A continuous read/write test of port 61h found that bit 4 (Refresh Detect) failed to toggle within an allotted amount of time.
INTERRUPT CONTROLLER FAILED	A sequential read/write of various Interrupt Controller registers failed.
ROM CHECKSUM INCORRECT	A checksum of the ROM BIOS does not match the byte value at F000:FFFF.

OmniBook Diagnostics

The OmniBook diagnostics program provides a tool for diagnosing and isolating a hardware problem. The diagnostics software is intended for use in concert with additional troubleshooting methods to accurately determine the cause of trouble. The diagnostics program is not designed for unassisted customer use. Unless otherwise indicated, all diagnostic tests and features are available on the OmniBook 2000, 5500, and 5700.

All tests provided in the diagnostics program are designed to run following a clean boot of the OmniBook. This ensures that the environment of the computer will be In a dependable state for the diagnostics program to properly test the hardware components. The individual tests are non-destructive and are intended to preserve the state of the OmniBook. Reboot after completion of any test to ensure proper loading of necessary drivers.

Running diagnostics

The diagnostic software must be executed from a DOS command-line following a clean boot. For a system that normally boots to Windows for Workgroups, press F5 at bootup after the BIOS displays the CPU speed. This will boot the OmniBook to a DOS command-line. For a Windows 95 system, press Shift-F5. The user interface may be invoked or individual tests can be initiated from the command-line. When executed from the command-line, a test may or may not display results, but always terminates with either a zero for success or a non-zero for failure (the DOS errorlevel will be set accordingly). Non-zero results can be unique for each test (a result of 2 from a RAM test has a different meaning than a 2 from the serial test).

The diagnostic program is located in the **c:\omnibook\diag** directory. The main diagnostic program (user interface) is invoked by typing **diag** at the command-line. The main program looks for executables to perform individual tests using the same path with which it was invoked. For example, if the program was initiated by typing **c:\omnibook\diag\diag** from the root directory, then the **diag** directory will be searched for individual test programs.

Logging Test Results

Results can be logged to a file in the current drive and directory by pressing Alt-L. Only failures are written to the file. The log file is in ASCII format with the following layout:

date time test label failure description

The main program performs the logging. When logging is enabled for the first time (via the keyboard), the specified file is opened. If the file already exists, it is truncated. When logging is disabled or the program is terminated, the file is closed.

Looping Tests

Any test, or selection of tests, can be made to repeat or loop. The loop count can be changed by pressing Alt-C. The default count is 1; the maximum count is 9,999. A count of zero (0) indicates infinite looping. The count that is set applies to all tests until DIAG is terminated or the count is changed again.

Pressing the Backspace key will abort the looping sequence. The diagnostics program will check the keyboard for the Backspace key between each test and each iteration. However, since many

tests also read the keyboard and discard unexpected key presses, this feature may not work as expected.

When looping is enabled (count 0 or greater than 1), the date and time is displayed as each test is executed. The timestamp is displayed as the test begins and is over-written at completion.

The DIAG.INI file, located in the c:\omnibook\diag directory, contains a “Loop” entry for each test. The value of the entry determines whether the test can be placed in looping mode as part of a group of tests. A value of “1” enables looping in a group, while a ”0” disables this feature. Regardless of this setting, looping will always be available when a test is initiated individually; the Loop entry in DIAG.INI only affects looping on groups of test. In general, group looping is disabled for the tests that require action by the tester such as the keyboard, mouse, and joystick tests.

User Interface

The main diagnostic program provides a user interface where the following actions can be performed:

- launch individual or groups of tests
- loop through a given set of tests *n* times or indefinitely
- optionally log failures to disk

An example of the user interface screen is displayed below. Note, on the OmniBook 5500, the Full 2 Unit IR and Fan tests are not available. Also, the Internal IR test is referred to as the Fast IR test on the OmniBook 5500.

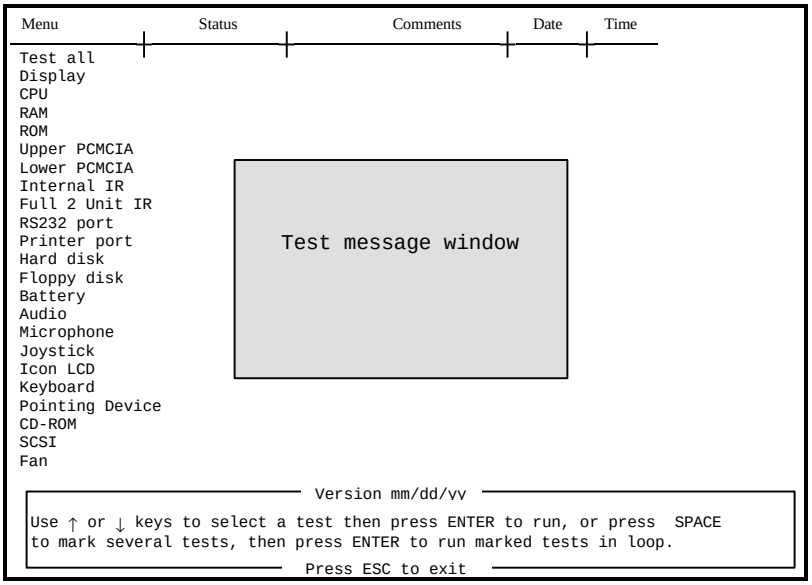

Figure 8 - Diagnostics User Interface

The current test will be displayed in inverse video. The *Test message window* is an area of the screen, varying in size, that individual tests use for displaying messages. If used by a test, it pops up and is then removed when the test completes. The *Status* column is used to display the results of individual tests. *Comments* will be used for additional information. *Date* and *Time* are used for looping tests.

Keys are accepted from the keyboard, an external keyboard, or the serial port. The Alt key, used in conjunction with the appropriate letter, will pop-up each menu on the screen. Refer to Table 6 for a description of each key that is available for use in the user interface.

Table 6 - Dianostic Interface Available Keystrokes

	Key	Description
Selecting Tests	Enter	run the selected tests (marked or hightlighted)
	Ctrl-Enter	run the alternate selected tests (marked or highlighted). See list of individual tests.
	Space	mark or select a test
Cursor Movement	End	move highlight to end of test list
	Home	move highlight to beginning of list
	Up Cursor	move highlight to the previous test in list
	Down Cursor	move highlight to the next test in list
Miscellaneous	Alt-L	toggle Logging on/off
	Alt-C	set loop Count
	Backspace	stops a looping test but leaves looping in effect
	Esc	return to previous level; used to exit dialogs; from the main screen exits diagnostics causing a reset

Interpretation of test results

The test results will be displayed in the *Status* column of the user interface screen. Possible results are OK, Done, User Abort, Failed or a brief message indicating the type of failure. OK indicates that the test passed. Done indicates that the test has completed. See Details on Individual Diagnostic Tests beginning on page 33 for more information on each individual test.

Special test hardware requirements

Several tests within the OmniBook diagnostics program require special hardware. If the hardware is not present, the diagnostics will fail or not function properly. The below table lists the tests that require special hardware.

Table 7 - Diagnostic Tests that Require Special Hardware

Test	Required Hardware
Full 2 Unit IR[1]	Another OmniBook running the alternate (reflecting) 2 unit IR test. See the Full 2 Unit IR test instructions on page 36.
RS-232 port	RS-232 serial loop back connector (see page 32 for diagram).
Printer port	Parallel port loop back connector (see page 32 for diagram).
Floppy disk	Formatted floppy disk which is not write protected.
Joystick	Joystick and F1181A port adapter.
CD-ROM	CD in the CD-ROM drive.
SCSI	The OmniBook must be docked.

[1] Not available on the OmniBook 5500

Loop Back Connectors

In order to run the RS232 serial port or parallel port self-test, a loop back connector is needed. The loop back may be placed on either the OmniBook port or at the end of the corresponding cable. This feature is also helpful in diagnosing a defective serial or parallel cable.

Loop back connectors may be purchased or easily constructed. The following illustrations identify the correct pin-out configurations for the serial and parallel loop back connectors.

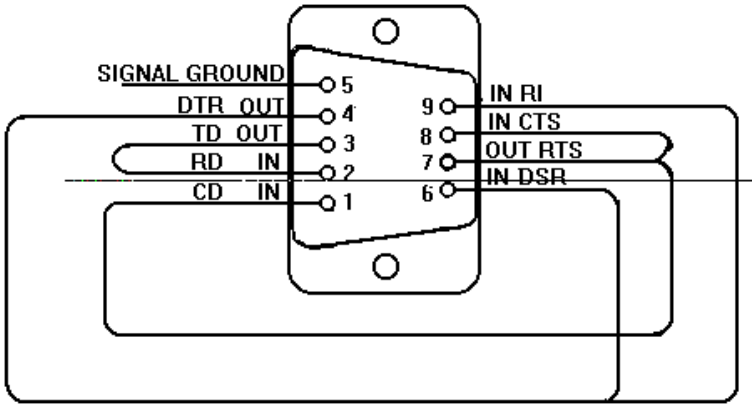

Figure 9 - Serial Loop Back Connector

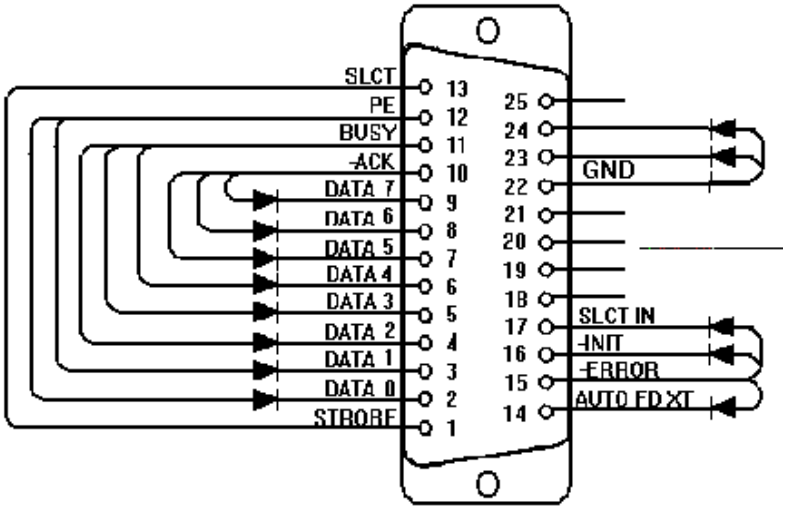

Figure 10 - Parallel Loop Back Connector

Details on Individual Diagnostic Tests

This section explains each test within the diagnostics program. Each test is listed along with its command-line file name. A brief description of the test, command-line parameters, valid keystrokes available during the test, and corresponding failure messages with error codes are also given.

Note, the term “flushed” that is used in the keystrokes sections indicates that the key is read from the key buffer and then discarded.

Test All

This is an easy way to run all the tests in sequence. However, looping does not work as expected with the Test All selection. For example, if three tests are tagged for looping and Test All is initiated, then the first two tests are executed only once. The last test in the sequence is the only test that will be looped.

Display - (DISP.COM)

The Display test executes a sequence of patterns on the screen:

1. Tests video RAM, which leaves vertical lines in groups of 4.
2. Draws a box around the outside edge of the display, filling the center with black.
3. Fills the entire display with white.
4. Fills the entire display with a 10-pixel checkerboard.
5. Fills the display with horizontal lines on every 4th pixel, then steps the lines 3 times.
6. Fills the display with vertical lines on every 4th pixel, then steps the lines 3 times.
7. Draws 16 horizontal bars of different colors.
8. Draws 16 vertical bars of different colors.
9. Draws 4 horizontal shaded bands (red, green, blue, and white) with vertical tick marks.

DOS Parameter	Explanation
1, 0, or none	Wait for a key after each display pattern
2 or greater	Don’t wait for a key

Valid Keystrokes	Action
any key	When the DOS parameter is set to wait for a key, any key will step to the next display pattern; the only way to exit the test is to step through all patterns.
Esc	Aborts the test and all other keys are flushed.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
Failed	2	Video RAM is bad.

CPU - (CPU.EXE)

The CPU test checks the general purpose registers by copying a bit pattern through each register. Then a test of the Translation Lookaside Buffer is performed.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
n/a	The CPU test ignores the keyboard.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
Failed	2	The register test failed.
Failed	3	The CPU is in protected mode, must clean boot.
Failed	4	The Translate Lookaside Buffer test failed.

RAM - (RAM.COM)

The RAM test checks the base 640K of RAM first, then the remainder of memory.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
Backspace	Aborts the test, all other keys are flushed.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
Failed	3	Could not move to new code segment. RAM is bad.
Failed	4	CPU protected mode bit set, must clean boot.

ROM - (ROM.EXE)

The ROM test performs a 1-byte arithmetic checksum on the ROM block at address F000.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
n/a	The ROM test ignores the keyboard.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.

PCMCIA - (PCMCIA.COM)

The PCMCIA test sets up the TI CardBus controller chip, tests IRQ 3, and restores the chip.

DOS Parameter	Explanation
0	Test lower slot
1 (or any non-0 value)	Test upper slot

Valid Keystrokes	Action
n/a	The PCMCIA test ignores the keyboard.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
Failed	2	IRQ fail

Internal IR - (FIRTEST.EXE)

This test performs a minimal test of the IR chip but does not require a second OmniBook. The Full 2 Unit IR test is a more thorough test and does require a second OmniBook (see next section).

DOS Parameter	Explanation
Internal	Performs the internal (standalone) test.

Valid Keystrokes	Action
n/a	The Internal IR test ignores the keyboard.

Failure Message	Error Code	Meaning
Must clean boot	1	CPU protected mode bit set, must clean boot.
Must undock	3	This test cannot run while docked. Can also get this error if the internal transmit failed.
Failed	5	Receive fail or any other fail.

Full 2 Unit IR Test - (FIRTEST.EXE)

The Full 2 Unit IR test is not available on the OmniBook 5500. This test requires two OmniBooks: one on which the IR is known to be good, and the computer to be tested. The computer that is being tested will transmit IR packets to the known good computer, which will transmit (reflect) the packets back. This method ensures both transmitting and receiving functions are checked on the computer under test.

The test checks 115200 baud, 1.152 Mbps, and 4 Mbps by sending 20 packets at each speed and looping through the 3 speeds three times for a total of 60 packets at each speed. Every received packet is checked byte for byte against the packet that was sent. Every packet must pass or the test will fail.

To run the "Full 2 Unit IR" test, perform the following steps:

1. Clean boot both computers.
   Windows 95 -- reboot and press <shift><F5> shortly before or after the computer displays "Starting Windows 95".
   Windows for Workgroups -- reboot and press <F5> while the boot menu is displayed.

   After clean booting, change to the c:\omnibook\diag directory.

2. Prepare the known good computer to reflect packets to the test unit.
   Run DIAG.EXE and highlight "Full 2 Unit IR" and press <CTRL> + <ENTER>. (When desired testing duration is complete, press any key to abort the reflecting end of the test.)

3. Position the computer to be tested so that the IR port is in line with the IR port on the known good unit. For a simple pass/fail test, run DIAG.EXE, highlight "Full 2 Unit IR" and press <ENTER>.

DOS Parameter	Explanation
Internal	Performs the internal (standalone) loopback test. This option does not test as much of the IR hardware, but will work with just one computer. Do not use this parameter with any of the other parameters.
Reflect	Initiates the "known good" reflecting end of the full 2 unit test.
Baud=xxxxxx	Sets the baud for the first speed tested (defaults to 115200 baud). Unless /PHYTEST is also used, the 1.152M and 4M speeds will always be tested. Type in the full number for the baud to be tested (type 1152000 for 1.152Mbps, 4000000 for 4Mbps). Note -- This parameter must be used on both the known good reflecting computer and the computer under test. Both computers must start at the same speed to be able to communicate.
Loops=xxxxx	Sets the number of times to loop through

	the 3 speeds under test. Default = 3.
Phytest	Limits the test to just one speed which can be set with /BAUD. It also uses all null bytes rather than random data. Default speed = 115200 baud

Valid Keystrokes	Action
any key	Any keystroke will abort The Full 2 Unit IR test.

Failure Message	Explanation
OK	The test passed.
Must clean boot	A clean boot is required prior to the test (see step 1 above).
User abort	The test was aborted.
Must undock	The test cannot run when the OmniBook is docked.
No reflector unit	The computer under test did not receive back any of the packets it transmitted. Either the known good computer is not positioned properly or is not running the test (see step 2 above).
Fail	The test failed.

RS-232 Port - (RS232.COM)

NOTE: This test requires a serial loopback connector to be connected to the serial port.

The RS-232 Port test reads/writes to the COM1 serial port IER, baud divisor registers, and LCR. It also checks for the loopback connector and sends a byte through the loopback connector at each of the baud rates. The RS-232 Port test is hardcoded to test the UART at 3F8, therefore, it can test only COM1.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
n/a	The RS-232 test ignores the keyboard.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
Failed	2	No loopback connector
No loopback	3	Sending bytes failed
No loopback	4	Register read/write test failed

Printer Port - (LPT.COM)

NOTE: This test requires a parallel loopback connector to be connected to the parallel port.

The Printer Port test checks the data port by writing and reading different bytes 1000 times. The loopback connector is tested by toggling data bits 0 and 1 and seeing if the PE bit gets set. Finally, all of the loopback connections are tested.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
n/a	The Printer Port test ignores the keyboard.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
No loopback	3	Initial check for loopback connector failed.
No loopback	4	Data port test failed.
No loopback	5	Loopback connector test failed.

Hard Disk - (HDC.EXE)

The Hard Disk test verifies the presence of a hard disk, then reads/writes to the sectors. Within the user interface of Diag, pressing the Enter key invokes a short test. The short test check 1% of the cylinders and takes about a minute to complete. Pressing Ctrl-Enter runs the long test. This checks 100% of the cylinders and takes about 1.5 hours to complete.

DOS Parameter	Explanation
1, none	Only test 1% of the cylinders
N	Test N% of the cylinders

Valid Keystrokes	Action
Esc	Aborts the test, all other keys flushed.

Failure Message	Error Code	Meaning
User Aborted	1	Esc key pressed, or bad hard drive
Failed	2	No hard disk
Failed	3	Hard drive controller failed.

Floppy Disk - (FDC.EXE)

NOTE: This test requires a formatted floppy disk to be inserted in the floppy drive.

The Floppy Disk test checks for the presence of a floppy drive with a floppy disk. If a floppy disk is not present in the drive, the test will prompt for one. At this point, a floppy disk must be inserted to continue (a reboot is necessary to abort at this stage). The sectors on the floppy disk are then tested. A complete test (100% of the sectors) takes about 1 minute and 38 seconds.

DOS Parameter	Explanation
1, none	Only test 1% of the sectors
N	Test N% of the sectors

Valid Keystrokes	Action
Esc	Once the test begins testing the floppy disk, Esc will abort; all other keys are flushed.

Failure Message	Error Code	Meaning
User Aborted	1	Esc key pressed, read/write fail, or write protected disk

Battery - (BATTERY.EXE)

The Battery test displays battery voltage, temperature, type, charging information, and CPU temperature.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
Esc	The Battery test will run until the Esc key is pressed; all other keys are flushed.

Failure Message	Error Code	Meaning
none	n/a	The test does not return an error code.

Audio - (AUDIO.EXE)

The Audio test plays “Row, Row, Row Your Boat.” It is up to the tester to determine if the audio fails or succeeds.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
n/a	The Audio test ignores the keyboard.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
Failed	3	A sound chip configuration call failed

Microphone - (MIKE.EXE)

Within the user interface of DIAG, the Microphone test records for a short time and then plays back what was recorded (similar to the “Rec” parameter).

DOS Parameter	Explanation
Rec	Record and play back what was recorded
On	Turns the microphone on
Off	Turns the microphone off
Gainon	Sets the gain bit in the sound chip
Gainoff	Clears the gain bit in the sound chip
Squeal	Turns the microphone on, sets the gain bit, turns the volume all the way up (so it squeals), waits for a key press, then turns off the gain bit and the microphone.
Vol n	Sets the microphone volume where n = 1 to 31 (31 being loudest)

Valid Keystrokes	Action
n/a	The Microphone test ignores the keyboard. Any keys pressed will be executed when the test finishes.

Failure Message	Error Code	Meaning
	1	Parameter error

Joystick - (JOYSTICK.EXE)

NOTE: This test requires a joystick and port adapter F1181A.

The Joystick test prompts to press joystick buttons and to move the pointer to various positions.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
Esc	The Esc key will abort the Joystick test; all other keys are flushed.

Failure Message	Error Code	Meaning
User Aborted	1	Pointer movement test aborted with Esc
Failed	2	Joystick button test aborted with Esc

Icon LCD - (ICON.EXE)

The Icon test illuminates each segment of the icons in the icon LCD, moving from left to right. The test then flashes the entire panel three times. This is a visual test; no error codes are returned.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
n/a	The Icon LCD test ignores the keyboard. Any keys pressed will execute when the test finishes.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.

Keyboard - (KEYBD.EXE)

The Keyboard test consists of two types of tests: a full keyboard test, and a short keyboard test. For the full test, press the keys from left to right, top to bottom starting with Esc. For the short test, start with Pause/Break key and go clockwise around the outside of the keyboard and finish at the Scroll Lock key. Both tests skip the Fn key.

A high-pitched beep after a key press means it was the correct key and a low-pitched beep means it was incorrect. After an incorrect key is entered (low-pitched beep), the test allows four more attempts at entering the correct key.

The “Display Mode” of the keyboard test will display the number of the key as each key is pressed. The keys may be entered in any order. This mode is entered by pressing Esc during the test (as long as Esc is not the next key in the key sequence to be tested). Pressing Esc again exits display mode and resumes the keyboard test.

The DIAG.INI must be modified in order to invoke the short test within the user interface. Use the corresponding parameter explained in the below DOS Parameters table.

DOS Parameter	Explanation
1	Perform the short test
any non-1 value	Perform the full test

Valid Keystrokes	Action
any key	To abort the keyboard test, press five, consecutive, incorrect keys.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.

Pointing Device - (MOUSE.EXE)

The Pointing Device test prompts the tester to move the mouse cursor to four points on the display. The left and right mouse buttons are then tested.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
n/a	The Pointing Device test ignores the keyboard. Any keys pressed will execute when the test finishes.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
Failed	2	Timed-out waiting for tester action (10 seconds)
Failed	3	TrackPoint or H8 failed

CD-ROM - (CDROM.EXE)

NOTE: This test requires a CD to be inserted in the CD-ROM drive.

The CD-ROM test checks the CD-ROM controller and IRQ 15. Then a block is read and verified 10 times followed by an eject test.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
Esc	The Esc key aborts the CD-ROM test; all

	other keys flushed.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
CD Not Ready	2	CD not ready, no CD in drive
H/W Error	3	Timeout waiting for IRQ
Drive Not Present	4	CD drive not installed
Read Error	5	The read failed

SCSI - (SCSI.EXE)

NOTE: The OmniBook must be docked for this test to function properly.

The SCSI test checks for the presence of the PCI BIOS and SCSI controller. The test then checks for the presence of a SCSI hard disk, resets it, and copies the file SCSI.EXE to it.

DOS Parameter	Explanation
none	

Valid Keystrokes	Action
n/a	The SCSI test ignores the keyboard.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.
Failed	2	File copy to SCSI hard drive failed
Failed	3	PCI BIOS not present
Failed	4	SCSI controller not present
Failed	23	Error resetting the SCSI hard drive

Fan - (FAN.EXE)

The Fan test is not available on the OmniBook 5500. This test turns on the fan for the specified number of seconds. In the DIAG user interface, the Enter key instructs the test to run the fan for two seconds, while Ctrl-Enter runs the fan for five seconds.

DOS Parameter	Explanation
n	Number of seconds to run the fan (default=5)

Valid Keystrokes	Action
any key	Any key aborts the Fan test.

Failure Message	Error Code	Meaning
User Aborted	1	User aborted test.

Desktop Management Interface (DMI)

The Desktop Management Task Force (DMTF) was founded in 1992 by a group of leading computer manufacturers, including Hewlett-Packard, to define a standard method of managing the physical and logical components of personal computers. The result of these efforts is the Desktop Management Interface (DMI). The DMI package is pre-installed on the OmniBook 2000 and 5700.

Description of DMI

DMI is basically a set of rules for accessing information about a personal computer. Using DMI, an application program can determine, for example, which hardware and software components are present in a personal computer, the operating system that is being used, and the number of accessory board slots that are available. Using the DMI interface, a local or remote application program can check what hardware and software components are installed on your computer, how well they are working, and whether any needs replacing.

All this information is stored in a special Management Information Format (MIF) file, installed on each personal computer as part of the DMI package. The MIF file specifies information about components at two levels:

- **Groups** contain all the information concerning a particular hardware or software component. If more than one component of the same type is present, as is often the case with serial ports and hard disk drives, a group is repeated.
- **Attributes** are specific items of information relating to a group. Attributes of the Mouse group, for example, include the number of mouse buttons and the name and version number of the mouse driver being used.

Hewlett-Packard has developed a number of extensions to DMI to allow the enhanced features of HP OmniBook Notebook PCs to be managed with DMI. These extensions cover:

- Administrator and user passwords.
- Tattooing: a string of characters that uniquely identifies the computer.

Note: The DMI software package included with the OmniBook can only be used with the HP OmniBook Notebook PC.

For full details of the structure of the MIF file, including an explanation of the meaning of the fields of groups and attributes and how to write an application program that accesses this information, you can access the DMTF FTP server ftp.dmtf.org or the DMTF Web Pages at the URL www.dmtf.org .

Contents of the DMI Package

The DMI software and associated documentation is supplied either pre-installed on the OmniBook's hard disk drive or on two flexible disks. The contents of the package are the same in both cases.

Since the information accessed by the DMI software is specific to a particular computer, it must be installed on each computer separately.

The following software is supplied with the DMI package:

- A Microsoft Windows utility, SETUP.EXE, to install and initialize the DMI software.
- A Windows utility, HP TopTools. After DMI is installed, this utility can be used to display information about the computer through the DMI.
- A Management Information Format (MIF) file. This file contains information about everything on the computer that can be controlled using DMI facilities, and is initialized during installation.
- A component code, identifying the version of MIF file to use for specific models of HP OmniBook Notebook PCs.
- Windows-compatible DMTF Service Layer software, which controls access to the DMI.
- A client agent. The HP Remote DMI Agent is a DMI application and also a network server-side stream-based application. The Remote Agent is listening for Remote Application connection requests. If the main window of the Remote Agent is hidden, then no icon will appear on the screen when it is running.

Figure 11 provides a visual representation of the many components of the DMI package.

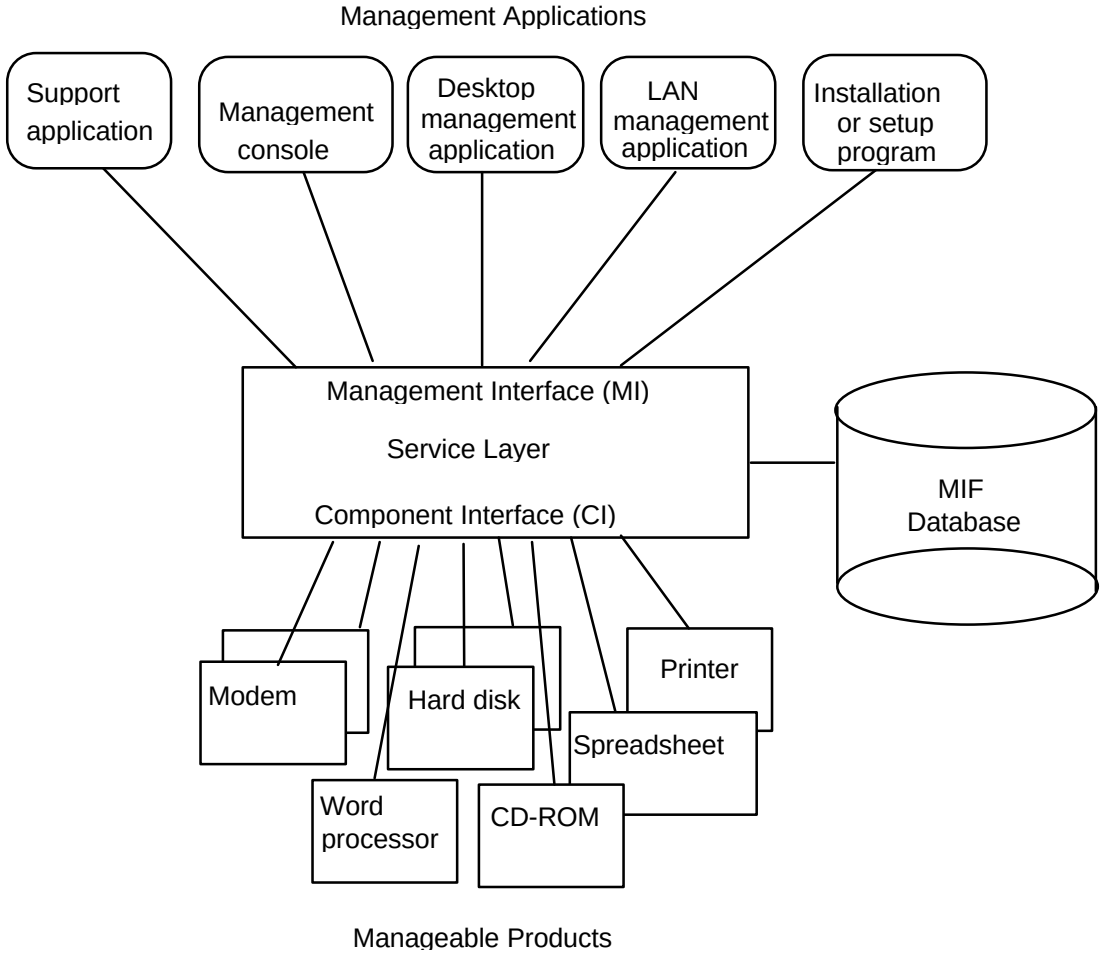

Figure 11 - DMI Components

Installing the DMI Package from Windows 95

The DMI package is included with the OmniBook, but it must be properly installed before it can be used. The following steps explain how.

Alternatively, to install the DMI from floppy disks:

- Copy the DMI software from the \omnibook\dirvers\win95\dmi directory of either the hard disk or Recovery CD to two floppy diskettes (copy the contents of the \disk1 subdirectory to diskette #1 and the contents of the \disk2 subdirectory to diskette #2).
- Start Windows 95, if it is not already running.
- Insert diskette #1 into the floppy drive.
- Select and run the SETUP program from the diskette #1.

To install the DMI preloaded on the hard disk:

- Start Windows 95, if it is not already running.
- Click on "Start".
- Go to "Programs - HP DMI".
- Select and run "SETUP".

Uninstalling the DMI Package from Windows 95

- Go to the HP DMI group.
- Launch the program "Uninstall DMI".
- Reboot the PC.

Using the DMI Interface

For a complete explanation of how to fully take advantage of DMI, the following documentation is provided with the OmniBook:

- A README.TXT file.
- A Windows online help file describing Hewlett-Packard's implementation of DMI (group and attribute definitions). Since not all Hewlett-Packard enhanced features are supported on all models, this document also describes any restrictions that apply.

System Configuration Utility

The System Configuration Utility (SCU) can be used to troubleshoot both software and hardware issues. Settings in the SCU may cause unexpected results in the operation of the OmniBook or installed applications. Battery charge and other system settings also can be verified with the SCU. The SCU settings are identical for the OmniBook 2000, 5500, and 5700, except where noted below.

The SCU is operating system independent and can be accessed by pressing F2 at boot-up or Fn+F2 at any other time. Use the <Alt> key to activate the menus and the cursor keys to navigate. The left mouse button, spacebar, and <Enter> key can also be used. The right mouse button and the <Esc> key will cancel the current action.

Main Configuration Screen

The main configuration screen of the SCU reports several system settings. See Figure 12 for an example of the main screen. The reported settings cannot be modified from the main screen; the changes must be made from the corresponding menu.

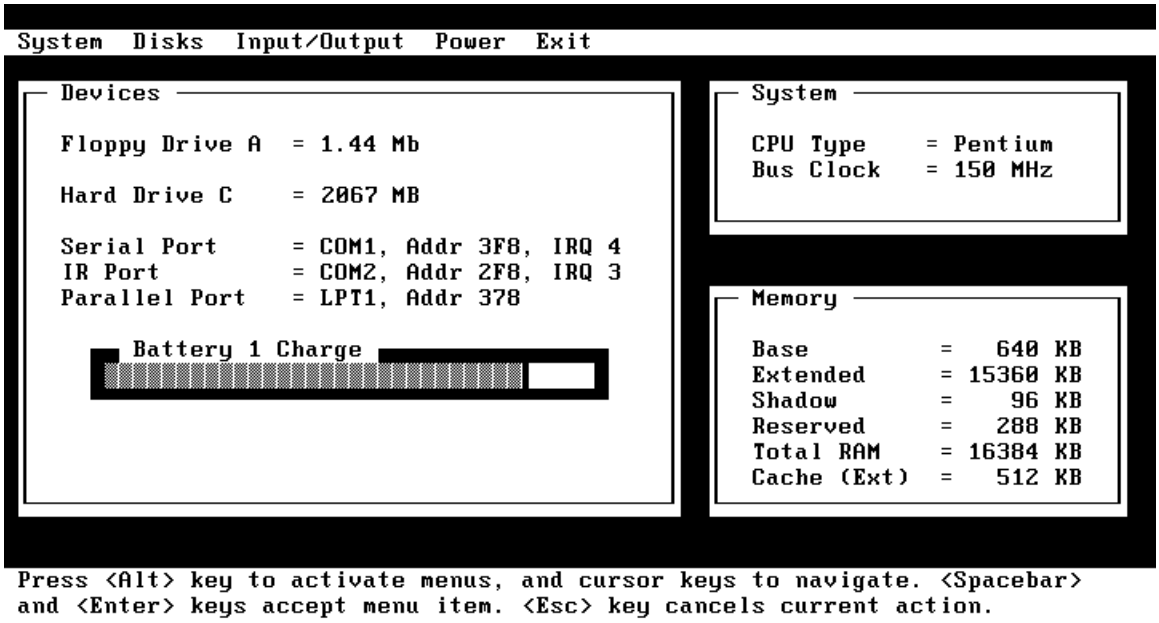
System Disks Input/Output Power Exit
Devices
Floppy Drive A = 1.44 Mb
Hard Drive C = 2067 MB
Serial Port = COM1, Addr 3F8, IRQ 4
IR Port = COM2, Addr 2F8, IRQ 3
Parallel Port = LPT1, Addr 378
Battery 1 Charge
System
CPU Type = Pentium
Bus Clock = 150 MHz
Memory
Base = 640 KB
Extended = 15360 KB
Shadow = 96 KB
Reserved = 288 KB
Total RAM = 16384 KB
Cache (Ext) = 512 KB
Press <Alt> key to activate menus, and cursor keys to navigate. <Spacebar> and <Enter> keys accept menu item. <Esc> key cancels current action.

Figure 12 - Main Configuration Screen

System Menu

The system menu of the SCU provides an interface to modify several system settings. See Figure 13 for an example of the system menu. An explanation of each system setting and the corresponding options are provided in Table 8.

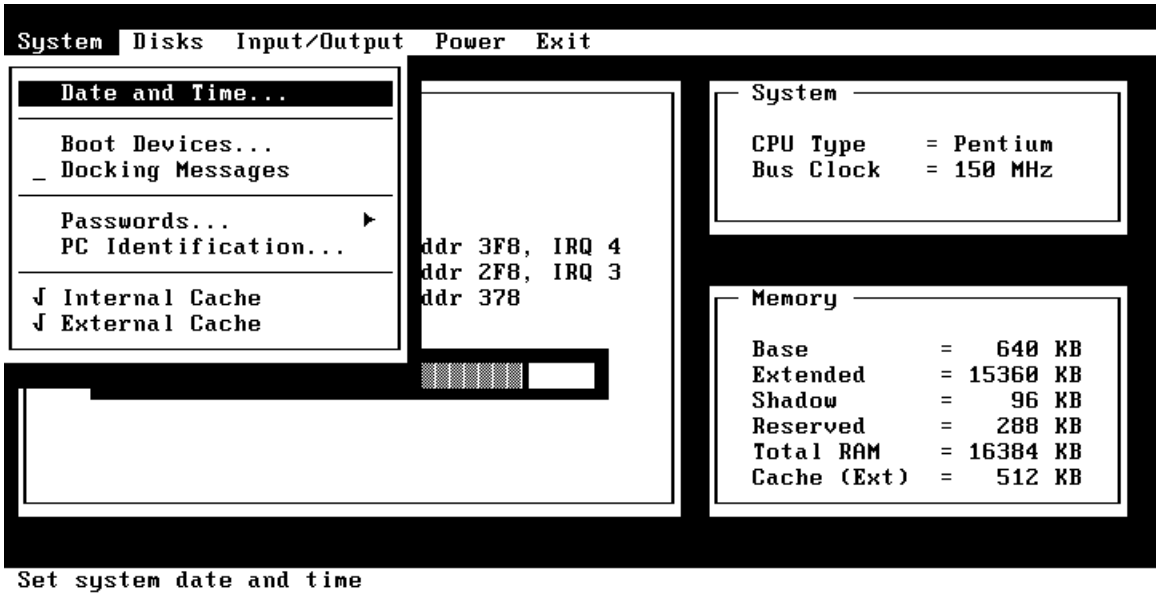

Figure 13 - System Menu Screen

Table 8 - System Menu Settings

Setting	Parameters	Default	Comment
Date and Time…	Day; Month; Year; Hour; Minute; Second		
Boot Devices…			
Boot Device	FDD First; HDD First	FDD First	Booting from HDD first is useful for protecting a computer from becoming infected by a boot-sector virus.
Boot Configuration	Full; Boot devices only; Auto-detect	Auto-Detect	Full configures all PnP devices; Boot devices only is used with Win95; Auto-detect will configure for the loaded OS.
Fast Boot	Selected; not selected	Not selected	Fast Boot skips RAM test.
Enable SCSI BIOS[2]	Selected; not selected.	Not selected.	Note, this requires changing the config.sys file. In Windows 3.11 enabling SCSI BIOS maximizes available memory when a hard disk drive is the only SCSI device.
Enable boot sector virus check[2]	Selected; not selected.	Selected.	Displays message during boot if hard disk sector 0 (partition sector)

[2] For the OmniBook 5500, this requires BIOS version 2.12 or later

Setting	Parameters	Default	Comment
			changed since previous boot. A change could indicate a virus.
Docking Messages	Selected; not selected	Not selected	Enables warning messages at DOCK and UNDOCK.
Passwords	**See Figure 14 - Passwords Menu Screen on page 50**		
PC Identification		blank	The text entered here (maximum of 4 lines of 24 characters per line) will be displayed at BOOT time. Possible text: name, address, phone number, company, or other asset tracking information.
Internal Cache	Selected; not selected	Selected	Enable internal CPU cache for faster performance.
External Cache	Selected; not selected	Selected	Enable external CPU cache for faster performance. **This setting is not available on the OmniBook 2000.**

Passwords Menu

The password option of the system menu provides an interface to enter and modify administrator and user passwords. See Figure 14 for an example of the password menu. An explanation of each password option is provided in Table 9.

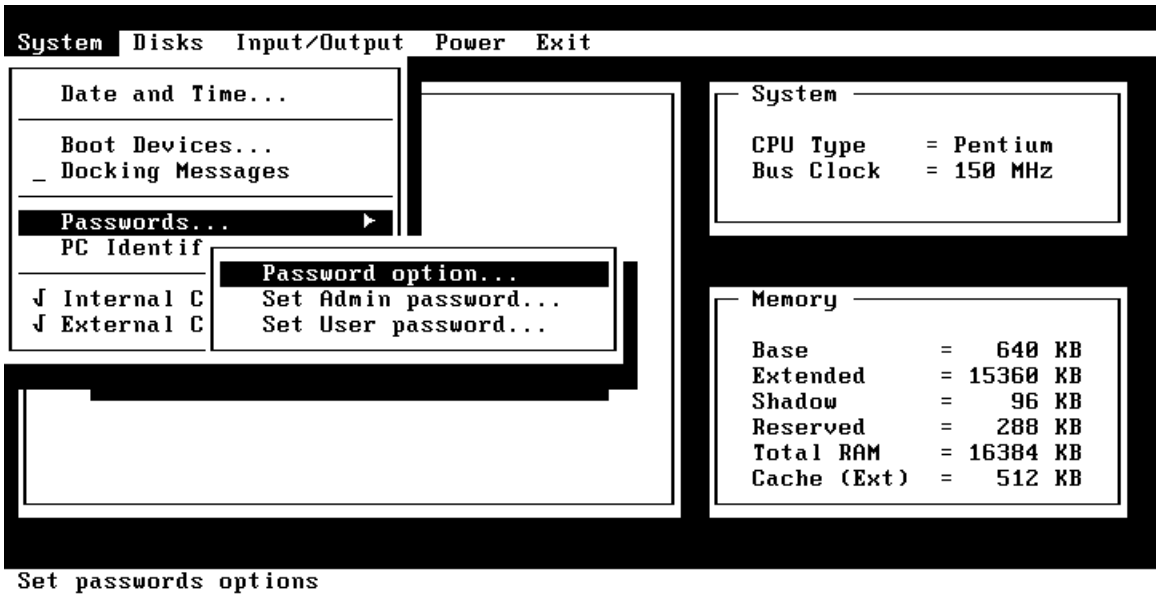

Figure 14 - Passwords Menu Screen

Table 9 - Password Menu Settings

Setting	Parameters	Default	Comment
Passwords…			
Password option…			
Admin Password required to:	Save modifications to PC ID texts Save Setup changes	none selected	Admin Password is required before proceeding beyond the selected actions. The Admin Password (if defined) is ALWAYS required to save changes to these checkboxes.
User Password required to:	Turn ON, Always; Turn ON, after FN+Suspend; Undock; Save Setup changes	none selected	Password is required before proceeding beyond the selected actions, and is ALWAYS required to save changes to these checkboxes. Admin Password can be used in place of any User password.
Disable hard disk drive lock[2]	Selected; Not selected	Not selected.	Check to remove password locking of the hard disk.
Set Admin password		none	Allows entry of Admin password.
Set User password		none	Allows entry of User password.

Disks Menu

The disks menu of the SCU provides an interface to modify floppy and hard disk drive parameters. See Figure 15 for an example of the disks menu. An explanation of each disk parameter is provided in Table 10.

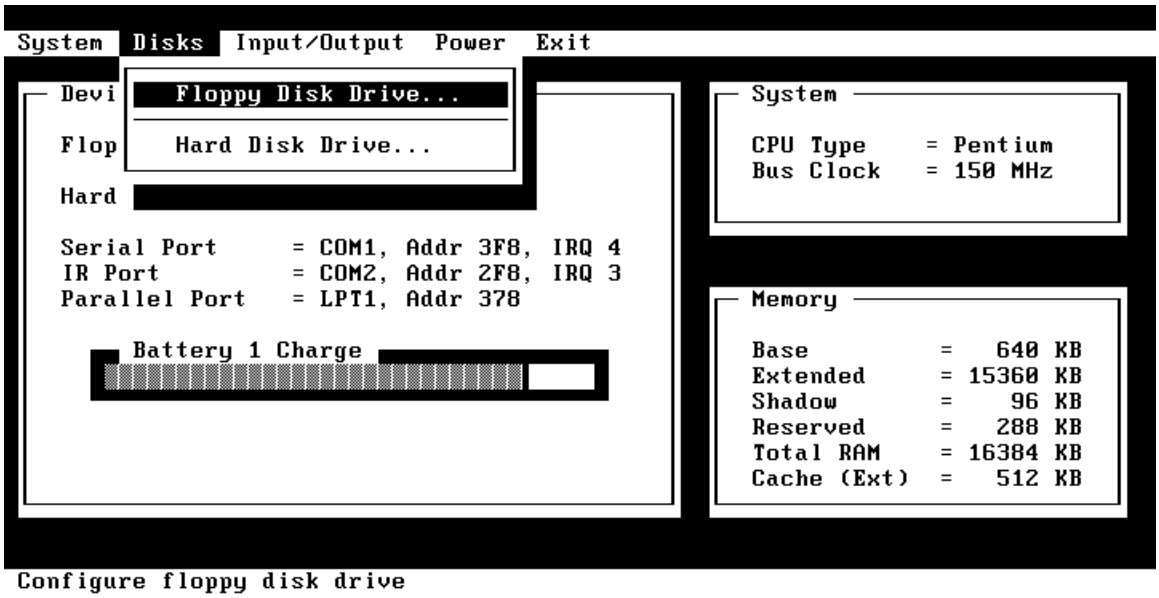

Figure 15 - Disks Menu Screen

Table 10 - Disks Menu Settings

Setting	Parameters	Default	Comment
Disks			
Floppy Disk Drive	None 1.44 Mb 2.88 Mb	1.44 Mb	
Hard Disk Drive	None Standard Custom Auto-ID	Auto-ID	Select the configuration type of the hard disk. 'Standard' selects from a table of older drivers. 'Custom' allows manual modification of drive parameters. 'Auto-ID' will attempt to automatically type an IDE drive. (This screen also reports # cylinders, # heads, sectors/track, landing zone, write precomp, type code, and size).

Input/Output Menu

The input/output menu of the SCU provides an interface to modify serial and parallel port parameters and other external device settings. See Figure 16 for an example of the password menu. An explanation of each password option is provided in Table 11.

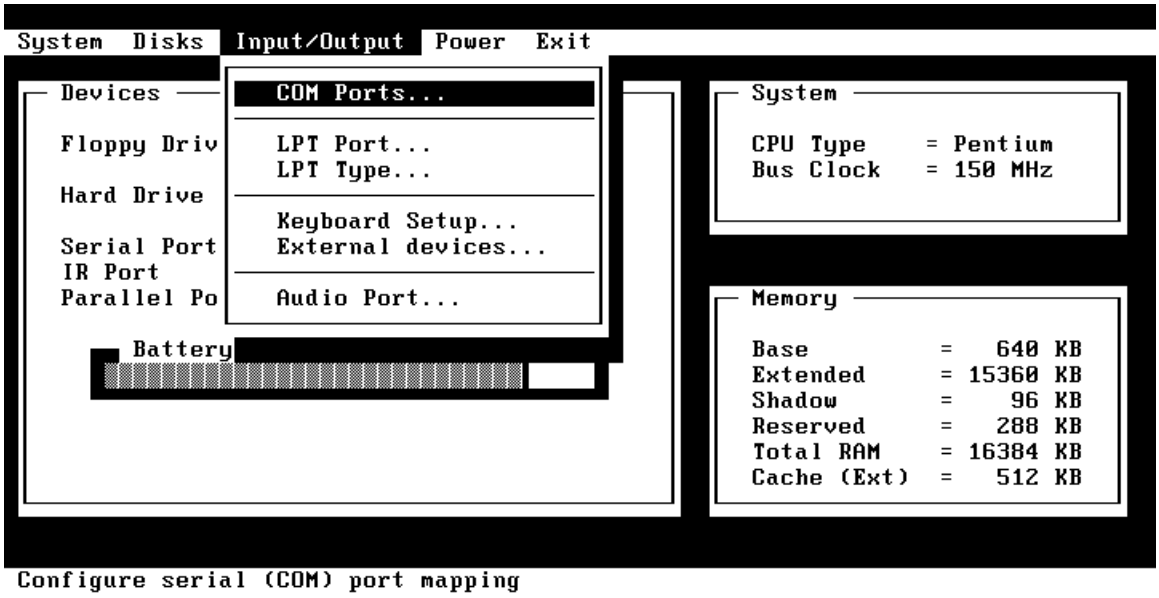

Figure 16 - Input/Output Menu Screen

Table 11 - Input/Output Menu Settings

Setting	Parameters	Default	Comment
COM Ports…			
Serial Port:	None COM1, Addr 3F8, IRQ 4 COM2, Addr 2F8, IRQ 3 COM3, Addr 3E8, IRQ 4 COM4, Addr 2E8, IRQ 3	COM1, Addr 3F8, IRQ 4	
IR Port	None COM1, Addr 3F8, IRQ 4 COM2, Addr 2F8, IRQ 3 COM3, Addr 3E8, IRQ 4 COM4, Addr 2E8, IRQ 3	COM2, Addr 2F8, IRQ 3	
LPT Port			
Printer Port	None LPT1, Addr 378 LPT2, Addr 278 LPT3, Addr 3BC	LPT1, Addr 378	
LPT Type			
Port Definition	Standard AT (Centronics) Bidirectional (PS-2)	Bidirectional (PS-2)	
Keyboard Setup…			
Key Delay	¼ sec; ½ sec; ¾ sec; 1 sec	½ sec	Select the delay period to wait (after a key is pressed) before it will begin to repeat.
Key Repeat Rate	2 cps; 6 cps; 10 cps; 15 cps; 20 cps; 30 cps	10 cps	Select the rate at which keys will be repeated when they are held down longer than the Key Delay period.
Keyboard Numlock	Selected, Not selected	Not selected	Start computer with NUM LOCK enabled.
External Devices…			
VGA Display device	External VGA if attached, LCD off; Both external VGA and LCD	External VGA if attached, LCD off;	When ‘External VGA…’ is selected, if an external VGA monitor is detected, it will be enabled and the LCD will be turned off. When ‘Both external VGA and LCD’ is selected, both are ALWAYS on.
Television Type	NTSC; PAL	NTSC	Select the television type. **This setting is available *only* on the OmniBook 5500.**
Force recognition of external VGA	Selected; Not selected	Not selected	Available only when *Both external VGA and LCD* is selected. **This setting not available on the OmniBook 5500.**
Enable External FN Key	Selected; Not selected	Selected	When enabled, CTRL + ALT on external keyboard acts as FN key.
Ignore External	Selected; Not selected	Not selected	

Setting Pointing Device	Parameters	Default	Comment
Audio Port… Audio volume Beeper volume:	 0-7 0-7	 7 3	 .

Power Menu

The power menu of the SCU provides an interface to modify various power management and battery charging configurations[3]. See Figure 17 for an example of the password menu. An explanation of each power option is provided in Table 12.

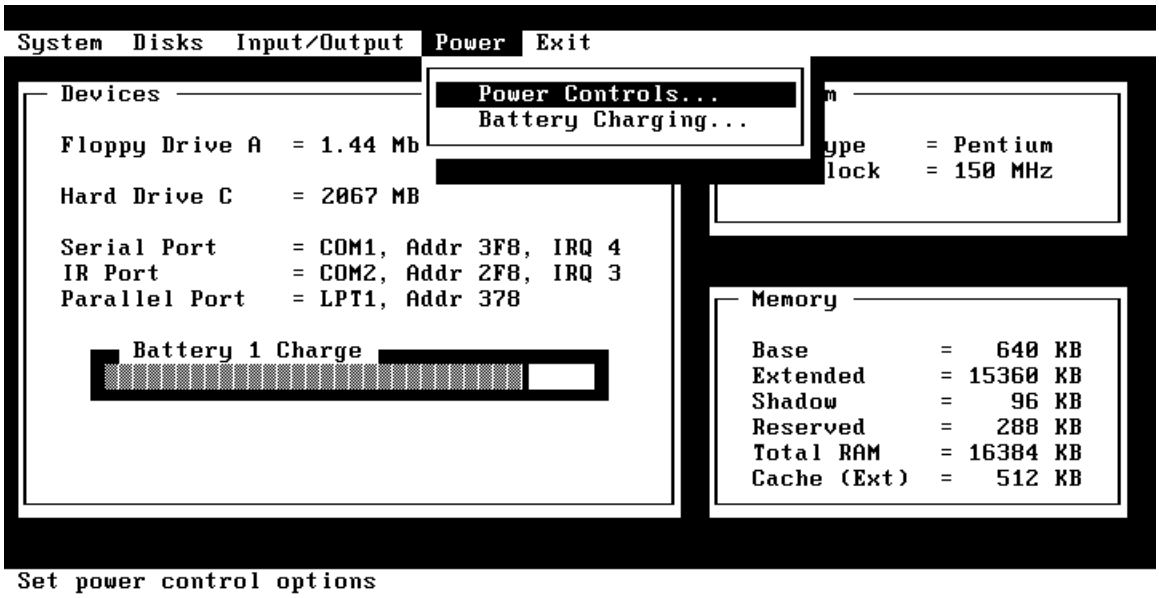
System Disks Input/Output Power Exit
Power Controls...
Battery Charging...
Devices
Floppy Drive A = 1.44 Mb
Hard Drive C = 2067 MB
Serial Port = COM1, Addr 3F8, IRQ 4
IR Port = COM2, Addr 2F8, IRQ 3
Parallel Port = LPT1, Addr 378
Battery 1 Charge
ype = Pentium
lock = 150 MHz
Memory
Base = 640 KB
Extended = 15360 KB
Shadow = 96 KB
Reserved = 288 KB
Total RAM = 16384 KB
Cache (Ext) = 512 KB
Set power control options

Figure 17 - Power Menu Screen

Table 12 - Power Menu Settings

Setting	Parameters	Default	Comments
Power Controls Power Saving	 Off/On	 On	 Enables power saving techniques (APM).
Suspend	Disable/Time (1 - 30 minutes or never)	3 minutes	When the system has been idle for the selected period, the computer will suspend. **This setting not available on the OmniBook 5500.**
Auto Hibernate (Save-to-Disk)	Disable/Time (6 hours to 7 days or never)	1 day	If the system has been suspended for the selected period, the entire state of the computer will be saved

[3] The power management software in some operating systems can override the SCU settings. Under these circumstances, changes to the power management settings may have to be made within the operating system in addition to the SCU. Refer to the operating system manual or readme file.

Setting	Parameters	Default	Comments
			to the hard disk, and the computer will be fully powered down.
HDD power-down	Disable/Time (1-30 minutes or never)	3 minutes	The hard disk will be powered down if there have been no disk accesses for the selected period. Hard disk power will be restored when the disk is needed again.
CPU power-down	Disable/Time (512 ms-8 seconds or never)	2 sec	The CPU clock rate will be reduced (i.e. slower performance) if the system has been idle for the selected delay. The clock rate will be restored when system activity is detected. Only applicable when APM is inactive.
Enable hibernate (Save-to-Disk)	Selected; not selected	Selected	Enables hibernate (disable to free up hard drive space).
Timeout during screen activity	Selected; not selected	Not selected	Allows timeout (suspend) during screen activity (like screen savers).
HDD power-down when on AC	Selected; not selected	Selected	Allows the hard disk drive to spin down while AC power is connected.
Disable low battery message[2]	Selected; not selected	Not selected	Inhibits display of BIOS low battery warning message. Does not affect reporting of battery status by operating systems.
Battery Charging	None Most drained first Least drained first Battery #1 first Battery #2 first	Most drained first	

Exit Menu

The exit menu of the SCU allows various methods of exiting the interface. See Figure 18 for an example of the exit menu. An explanation of each exit option is provided in Table 13.

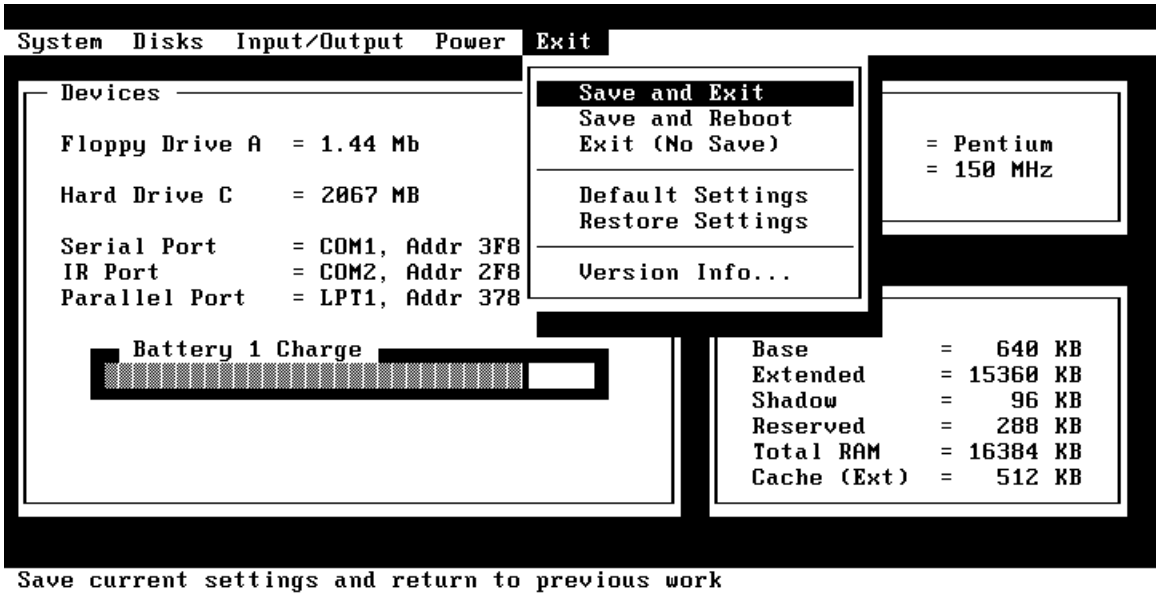
System Disks Input/Output Power Exit
Devices
Floppy Drive A = 1.44 Mb
Hard Drive C = 2067 MB
Serial Port = COM1, Addr 3F8
IR Port = COM2, Addr 2F8
Parallel Port = LPT1, Addr 378
Battery 1 Charge
Save and Exit
Save and Reboot
Exit (No Save)
Default Settings
Restore Settings
Version Info...
= Pentium
= 150 MHz
Base = 640 KB
Extended = 15360 KB
Shadow = 96 KB
Reserved = 288 KB
Total RAM = 16384 KB
Cache (Ext) = 512 KB
Save current settings and return to previous work

Figure 18 - Exit Menu Screen

Table 13 - Exit Menu Settings

Setting	Parameters	Default	Comment
Save and Exit	n/a	n/a	Save current settings and return to previous work.
Save and Reboot	n/a	n/a	Save current settings and reboot so that settings take effect.
Exit (No Save)	n/a	n/a	Exit without saving current settings.
Default Settings	n/a	n/a	Set current setup to default settings.
Restore Settings	n/a	n/a	Restore current setup to original settings.
Version Info…	n/a	n/a	Report current BIOS version information.

Troubleshooting Tips

Presented below is a table showing general guidelines for repairing units with specific failure symptoms. The order of likely causes is based upon data gathered by HP from analysis of failed modules. The suggested order of investigation is not mandatory but reflects the priority HP would currently place on looking for the root cause.

Swapping of easily replaced modules with known good reference modules is the ideal way to isolate the cause down to the module level. It is rare for more than one module to be responsible for the same failure symptom. Therefore, replacement of more than one module for a particular symptom should be the exception rather than the normal expectation.

After replacing modules, it is normal for some units to end up in a confused state and lock up when ac power is applied. If this occurs, the reset button should be pressed to bring the computer to a known state. If the unit still locks up or continues to lock up each time ac power is applied, the unit needs additional analysis.

Table 14 - OmniBook Troubleshooting Tips

Symptom	Call Center	Likely Cause (in order)	Comments
Battery			
Won't run on battery — no bars in battery icon	• Try known good battery in suspect unit • Try suspect battery in known good unit • Send in for repair	• Battery • PT-586	
Battery won't charge — light blinks	• Try known good battery • Send in for repair	• Battery	
Battery won't charge — no charge indicators	• Try known good battery in suspect unit • Try suspect battery in known good unit • Send in for repair	• PT-586	• Possible solder problem on RT1
Hard Disk Drive			
HDD doesn't spin at all	• Verify known good power source • Reseat HDD • Send in for repair	• PT-586 • HDD • HDD flex cable • HDD plastic kit	• If the HDD plastic kit is bent or otherwise misshapen, the HDD may not function properly.
Display			
Dark display — no light	• Ensure contrast/brightness button is installed properly • Adjust contrast/brightness • Send in for repair	• Broken backlight tube	• Replace display
Video problems — appears horizontal hold is out	• Send in for repair	• Display connector not seated	• Lift up icon assy — push down on left display connector.

Symptom	Call Center	Likely Cause (in order)	Comments
		correctly.	
Keyboard			
Keyboard errors — 2 characters on a keystroke instead of one	• Send in for repair	• PT-586 • PT-DC • Keyboard	• Damaged U10 • Shorted pins on connectors
Keyboard errors — no response from key(s)	• Send in for repair	• PT-DC • PT-586 • Keyboard	• Possible bad connector solder joints
Keyboard doesn't respond, audio slow, battery problems	• Send in for repair	• PT-586	• Damaged U10
Unit Hangs or Won't Boot up			
Won't boot up & no display	• Verify known good power source • Push reset button • Try pulling RAM module and re-inserting • Send in for repair	• PT-CPU • RAM module • PT-DC • PT-586 • PT-ICON	• Swap with reference CPU to check. Replace original CPU if not fixed. • Make sure RAM is seated properly — remove and re-install to check.
Unit hangs at Win95 screen during boot	• Eliminate any s/w configuration conflicts • Send in for repair	• PT-586	• Possible burnt R92 hangs up audio IC
Unit locks up after 2-3 minutes	• Run BIOS upgrade program • Send in for repair	• PT-ICON	• Corrupt EEPROM — run BIOS upgrade
Unit goes into suspend after "Bridge controller" message, won't resume	• Send in for repair	• PT-586	• Damaged U10
TrackPoint/Cursor			
Cursor pointer drifts slightly.	• It is normal for the cursor to drift slightly as the circuit does a self calibrate every once in a while • Send in for repair.	• Keyboard and palmrest.	• Be sure keyboards are tested with the correct palmrest. The latest TrackPoint sensor (CTS) must match up with a CTS palmrest. Mismatched keyboards and palmrests result in the cursor moving in the opposite direction of intended movement. • Refer to **Service Note 5500-04**.
Cursor pointer "flying" or drifting excessively.		• Mismatched palmrest and keyboard pair	
Cursor moves in the opposite direction of TrackPoint movement			
Miscellaneous			
Loses time	• Plug AC adapter into unit and let it charge for at least 24 hours.	• PT-586 Philips IC	• Refer to **Service Note 5500-01** for IC problem

Symptom	Call Center	Likely Cause (in order)	Comments
	• Send in for repair if still losing time.	• Sub-battery Discharged • Flex cable (F1320-60950) • PT-586 U46 or Y3 crystal IC	and **5500-07** for backup battery problem (should be >4.8V). • Replace PT-586
PCMCIA failure	• Check device manager in Win95 for resource conflicts • Send in for repair	• PT-586	• Also check for configuration problems
Slow audio and display	• Send in for repair	• PT-CPU	• Check for loose heat sink screws — tightening should fix • Check CPU fan for correct operation (use OmniBook diag program).
Computer gets hot	• It is normal for the computer to get warm/hot especially with 150 & 166 MHz MMX CPU and if charging the battery. Try using the fold down legs to raise the back of the machine to promote air flow. • On OB2000 and OB5700, ensure air vents are clear. • Send in for repair	• PT-586 • PT-CPU • RAM modules	• Check CPU fan for correct operation (use OmniBook diag program).

Part 3

Hardware Repair

- Battery
- Memory
- Hard Disk Drive
- Floppy Disk Drive
- Small Parts
- Display
- Keyboard
- Icon Board
- CPU Module
- Logic PCA Board
- Programmable Flash BIOS IC
- Video Memory
- Other Components and Accessories

CAUTION:	**Always provide proper grounding when performing any of the following repairs. An electrostatic discharge may cause irreparable damage to the OmniBook and its components.**

Battery
(End User Replaceable)

The OmniBook 2000 and 5700 must use the F1193B (F1193-60902) Standard Lithium Ion battery or the F1194B (F1194-60902) Enhanced Lithium Ion battery. Both of these batteries are fully compatible with the OmniBook 5500. **Do not use either the F1193A (F1193-60901) or F1194A (F1194-60901) battery in the OmniBook 2000 or 5700 as data corruption may occur on the hard disk drive.**

WARNING: Do not mutilate, puncture, or dispose of batteries in fire. The batteries can burst or explode, releasing hazardous chemicals. A rechargeable battery pack must be recycled or disposed of properly.

Table 15 - Battery Compatibility Matrix

Battery	Description	Part Number	OB2000	OB5500	OB5700
F1193A	Standard LiIon	F1193-60901		✓	
F1193B	Standard LiIon	F1193-60902	✓	✓	✓
F1194A	Enhanced LiIon	F1194-60901		✓	
F1194B	Enhanced LiIon	F1194-60902	✓	✓	✓

Required Equipment

- none

Removal Procedure

1. Slide the battery release switch to the right and slide the battery out of its compartment. See Figure 19 - note, this perspective is with the OmniBook upside down, which is not necessary.

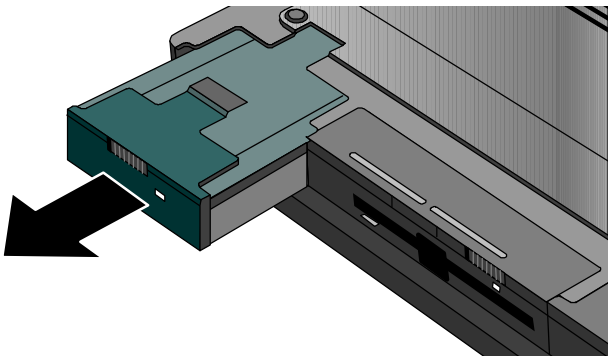

Figure 19 - Removing the Battery

Replacement Procedure

1. Reverse the above Removal Procedure.

Memory
(End User Replaceable)

CAUTION: To avoid damage due to electrostatic discharge, handle the memory module by the edges only.

The table below lists each of the available memory modules for the OmniBook 2000, 5500, and 5700. The check marks indicate which memory modules are compatible with each OmniBook.

Table 16 - Memory Compatibility Matrix

Memory	Part Number	Exchange p/n	OB2000	OB5500	OB5700
8-MB	F1134-60901	F1134-69001	✓	✓	✓
16-MB	F1135-60901	F1135-69001	✓	✓	✓
32-MB	F1136-60901	F1136-69001	✓	✓	✓
64-MB	F1335-60901	F1335-69091	✓		✓

Required Equipment

- Flat-bladed prying device (or fingernail)

Removal Procedure

1. Exit all applications, including Windows.
2. Remove the ac adapter and battery(ies) from the OmniBook.
3. Use a flat-bladed prying device (or fingernail) to remove the cover from the memory-expansion slot.
4. Pull out the memory board by lifting up on the removal tab. See Figure 20.

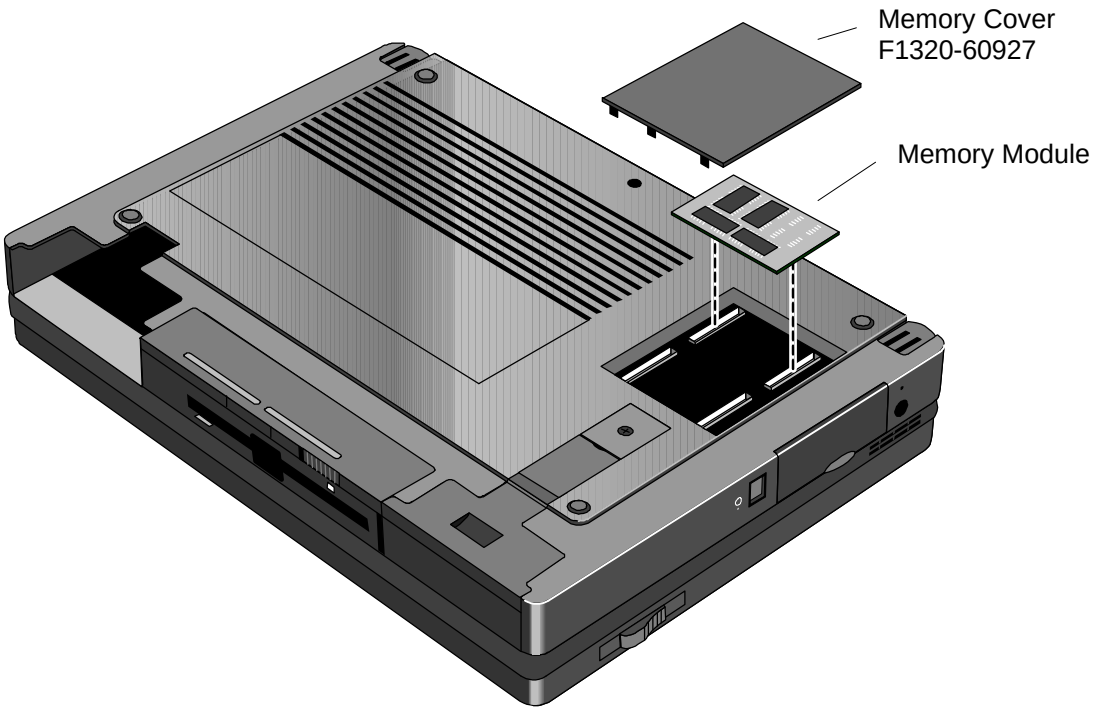

Figure 20 - Removing Memory

Replacement Procedure

1. Align the memory module over the connector slots and firmly press into place.

CAUTION: Avoid pressing the center of the memory module. This action could crack the board.

2. Replace cover and battery(ies) and reset the OmniBook.

Hard Disk Drive
(End User Replaceable)

Whereas all the hard disk drives are compatible between the OmniBook 2000, 5500, and 5700, the table below indicates which hard drives were originally shipped with each corresponding OmniBook.

Table 17 - Hard Drive Availability Matrix

Hard Drive	Part Number	Exchange p/n	OB2000	OB5500	OB5700	Hard Drive Plastic Kit Part #
810-MB	F1191-60901	F1191-69001		✓		F1320-60947
1.35-GB	F1192-60901	F1192-69001		✓		F1320-60947
2.1-GB	F1339-60901	F1339-69001	✓		✓	F1350-60920
3.1-GB	F1348-60901	F1348-69001			✓	F1350-60920
1.44-GB	F1375-60901	F1375-69001	✓			F1350-60920

Required Equipment
- Small phillips screwdriver

Removal Procedure
1. Exit all applications, including Windows.
2. Turn the OmniBook off and remove the battery and ac adapter.
3. Remove the screw and Security Cover located at the back end of the hard disk drive. See Figure 21.

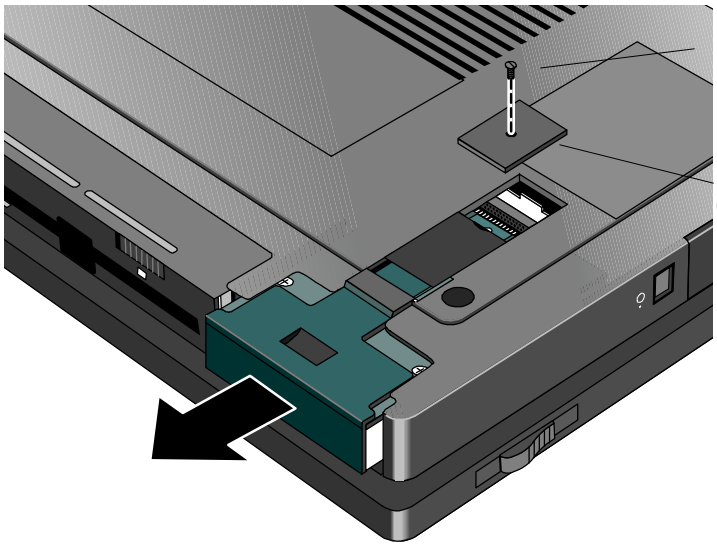

Figure 21 - Removing the Hard Disk Drive

4. Firmly slide the drive out of the compartment. This will take some force.
5. If the new hard drive does not have a plastic case, the old plastic case can be removed from the old hard drive by removing the four screws on the bottom of the case. Depending on the manufacturer of the replacement hard drive, the screw hole placement may vary. The

plastic portion of the hard drive may need to be removed to gain access to the screws of the plastic kit. See Figure 22.

6. Now, the hard drive can be slid out of the case. See Figure 23.

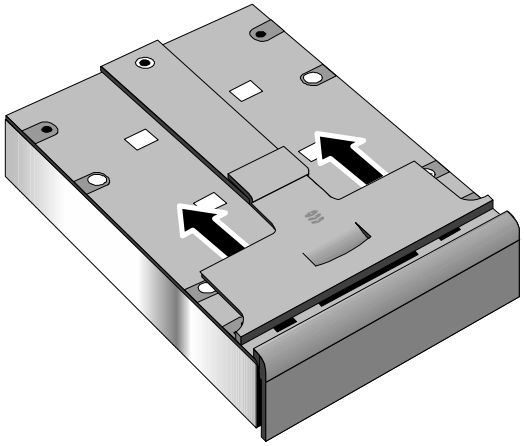

Figure 22 - Hard Drive Case

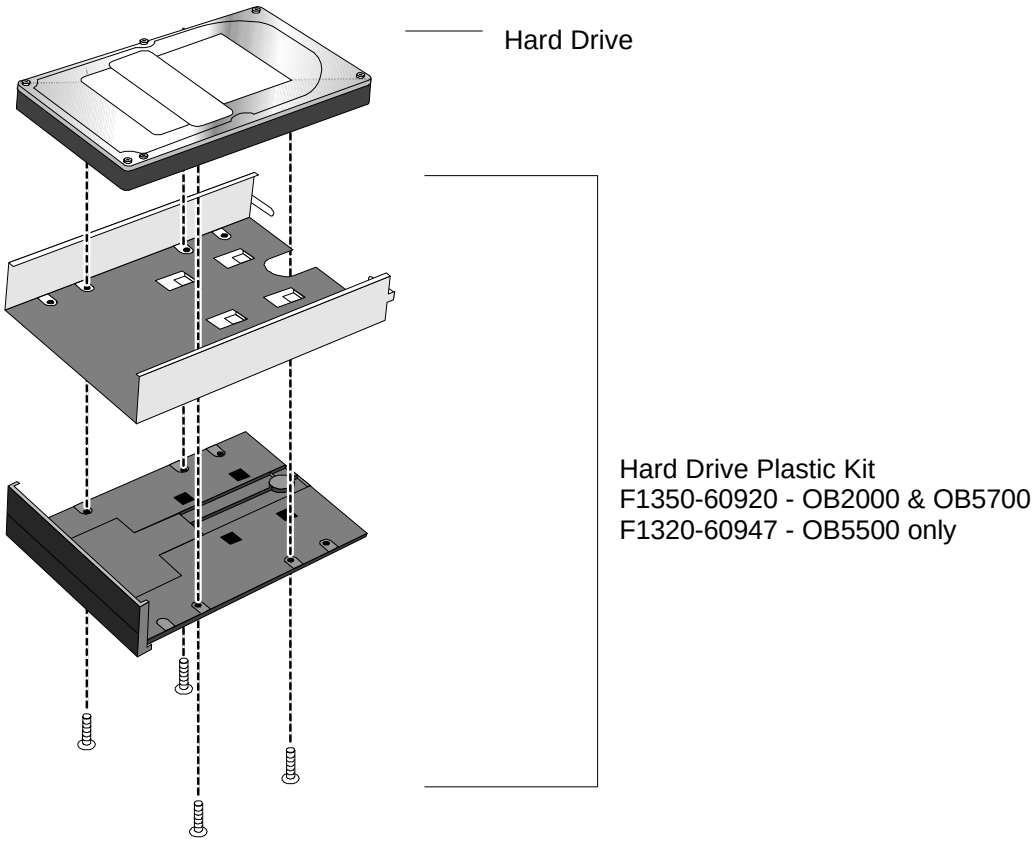

Figure 23 - Removing the Hard Drive Plastic Kit

Replacement Procedure

1. Reverse the above Removal Procedure.

Floppy Disk Drive
(End User Replaceable)

CAUTION: Do not remove the floppy disk drive while the OmniBook is actively reading or writing to it. Wait until the disk is inactive.

Required Equipment
- none

Removal Procedure
1. Slide the release switch on the floppy disk drive to the right.
2. Pull the pull-tab firmly to remove the floppy drive from the compartment. See Figure 24 - note, this perspective is with the OmniBook upside down, which is not necessary.

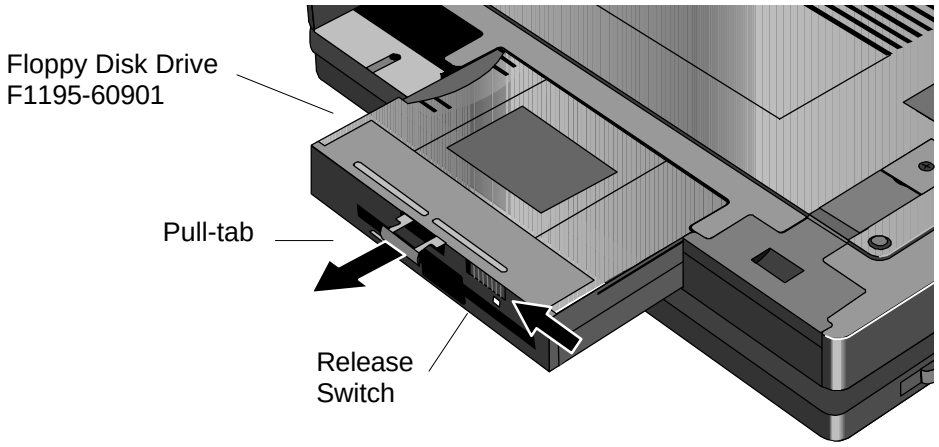

Figure 24 - Removing the Floppy Disk Drive

Replacement Procedure
1. Reverse the above Removal Procedure.

Small Parts
(End User Replaceable)

The following small parts are all end user replaceable. The procedures are the same for the OmniBook 2000, 5500, and 5700, except where noted.

Expansion Door - F1125-60920

Open the door and flex the center of the door until the side-tabs are released. Reverse to replace.

Display Contrast/Brightness Slider Button - F1371-60917

Use a blunt probe to gently pry the slider button from the display. To replace, align the button's prongs over the contrast/brightness post and press firmly into place.

Door, Flash BIOS - F1371-60901

On the OmniBook 2000, remove the screw securing the door and lift the door off the bottom case. Replace the door and screw. **The OmniBook 5700 will have this feature added at a later date; the OmniBook 5500 will not.**

Hard Drive Security Cover - F1320-40001

Use a small phillips screwdriver to remove the hard drive screw and security cover. Reverse to replace.

I/O Door - F1350-60910 (OB2000 & OB5700), F1320-60928 (OB5500 only)

Open the door and flex the center of the door until the side-tabs are released. Reverse to replace.

Memory Cover - F1320-60927

Use a flat-blade prying device or fingernail to pry the memory cover off. To replace, snap the cover into position.

PCMCIA Button Assembly - F1320-60949

"Unfold" the button, grasp firmly, and pull free. Reverse to replace.

Plastic Feet - F1320-60929

Flip the foot into an "open" position. Twist the foot to remove. Reverse to replace.

Printer Port Door - F1125-60918

Open the door and flex the center of the door until the side-tabs are released. Reverse to replace.

Rubber Feet - F1320-60957

Place a probe or similar device between the rubber foot and the plastic of the bottom case. Pry upward to pop the foot out. To replace, firmly press the foot into the hole.

Trackpoint™ Cap - F1320-60971

Grasp the cap firmly and pull upward. Reserve to replace.

Display
(HP Authorized Service Providers Only)

The below table summarizes the compatibility of displays between the OmniBook 2000, 5500, and 5700. Please note, that the proper Icon Board **must** be matched with the corresponding display type and manufacturer.

Table 18 - Display Compatibility Matrix

Display Part #	Display Type	OB2000	OB5500	OB5700	Icon Board[1]	Part Number
F1320-69004	10.4" TFT		✓		PCA PT-ICON	F1320-60924
F1320-69005	11.3" DSTN		✓		PCA PT-ICON	F1320-60924
F1320-69006	12.1" TFT Hitachi*	✓	✓	✓	PCA PT-ICON[2]	F1320-60924
					PCA PB-ICON/SVGA[3]	F1350-60907
F1320-69094	12.1" TFT Samsung*	✓	✓	✓	PCA PT-ICON/SMG[2]	F1320-60993
					PCA PB-ICON/SVGA[3]	F1350-60907
F1350-69002	12.1" TFT XGA			✓	PCA PB-ICON/XGA	F1350-60908
F1371-69006	12.1" DSTN	✓			PCA PB-ICON/DSTN	F1371-60911

* At the time of this printing, Samsung is considered the primary supplier of 12.1" TFT displays. Unless otherwise indicated, all 12.1" TFT SVGA orders should be placed against F1320-69094. However, this is subject to change without notice.

Required Equipment

- Small phillips screwdriver

Removal Procedure

1. Exit all applications, including Windows.
2. Turn the OmniBook off and remove the battery and ac adapter.
3. Follow the Hard Disk Drive Removal Procedure on page 67.
4. Turn the unit over and remove the two display screws located under the plastic feet. See Figure 25 on page 72.
5. Turn the unit back over and remove the Icon Assembly by applying pressure with the thumbs. See Figure 26 on page 72. Note, it is helpful to lift up on the display slightly.
6. The Icon Assembly flex cable may be disconnected at this point to completely remove the Icon Assembly, however, it is not necessary for the removal of the display.
7. With the Icon Assembly either removed or out of the way, disconnect the Display Cables[4] and the two Display Grounding Cables. See Figure 27 on page 73.

[1] Refer to Table 20 - Icon Board Compatibility Matrix on page 79.
[2] For the OmniBook 5500 only
[3] For the OmniBook 2000 and 5700 only
[4] The type of display cables (such as flex or wire harness) may vary depending on the type of display (such as TFT or DSTN).

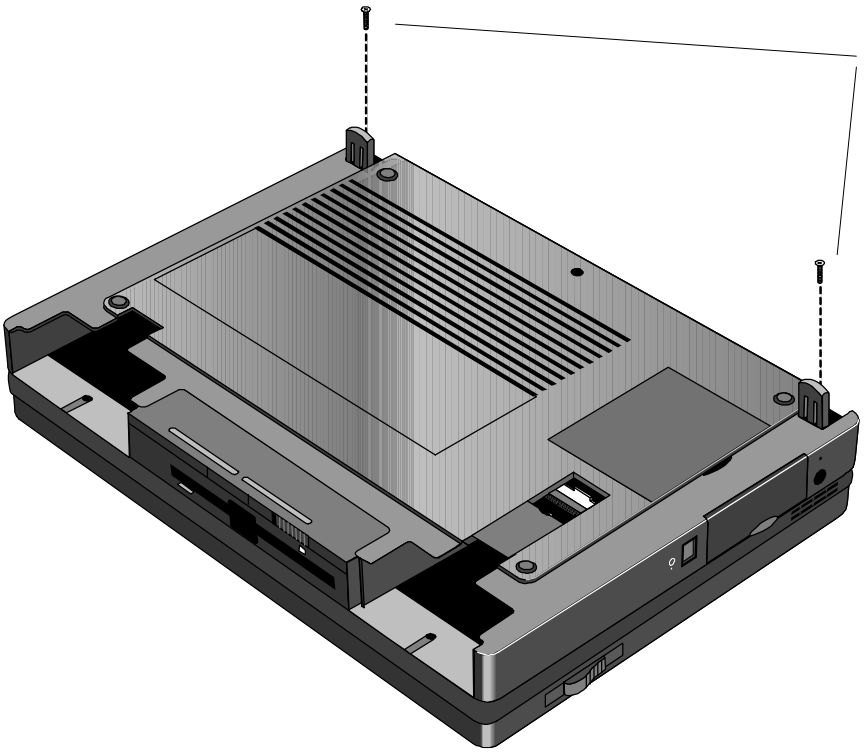

Figure 25 - Display Screws

Figure 26 - Icon Assembly Removal

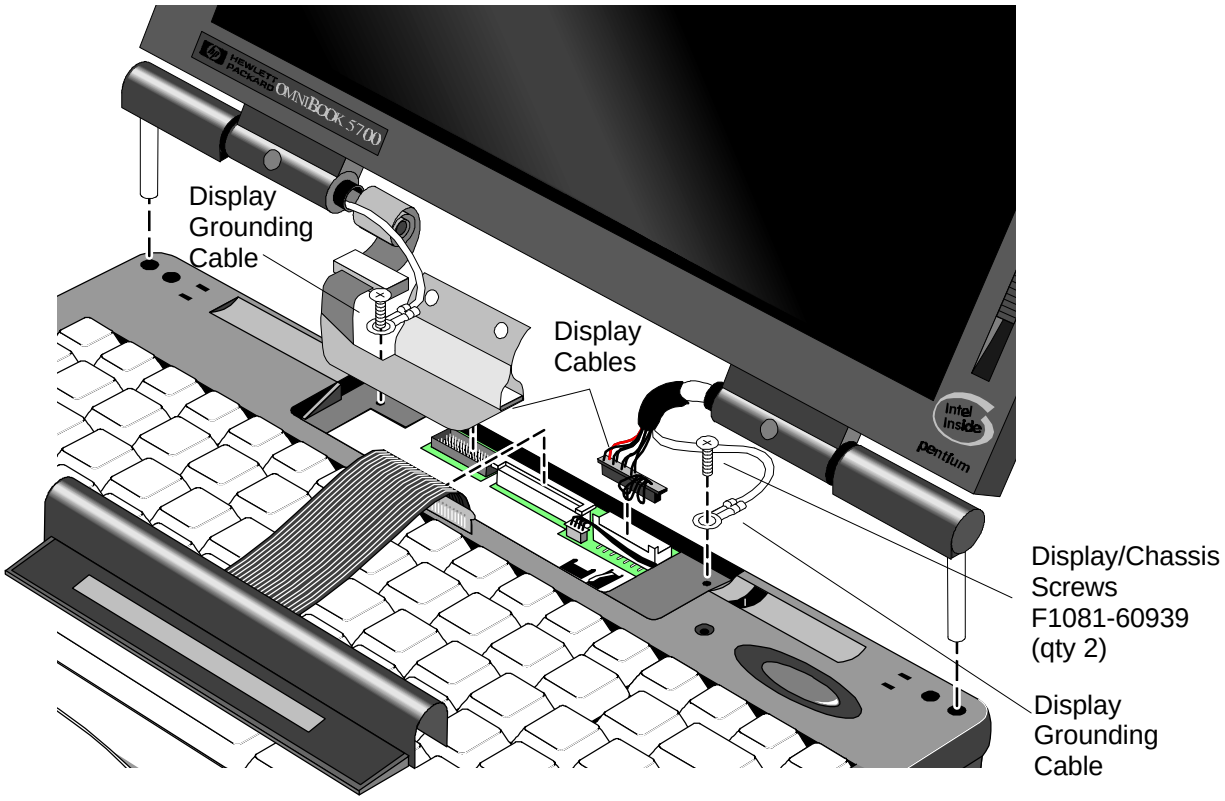

Figure 27 - Display Cables

Replacement Procedure

1. To replace, reverse the above Removal Procedure. Take care to properly position the Display Flex Cable. It must be wrapped three times around the post. See Figure 28.

CAUTION: To avoid crimping the icon assembly flex cable, ensure that it is tucked inside of the icon assembly "tunnel."

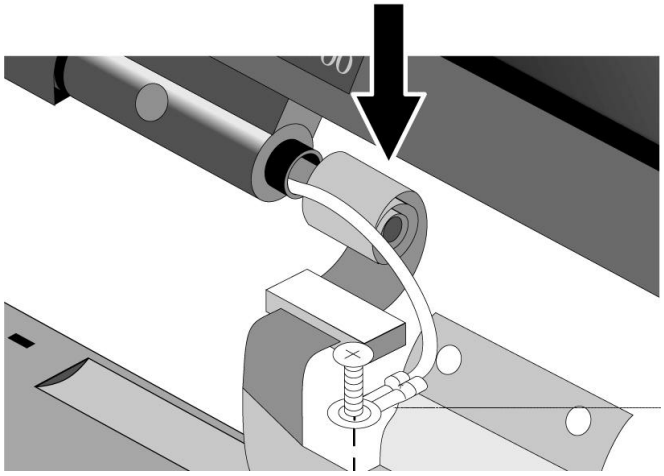

Figure 28 - Display Flex Cable Position

Display Labels

The OmniBook replacement display must be affixed with four labels before it is suitable to return to the customer. The below table summarizes the proper labels for each OmniBook and display type. The illustrations that follow demonstrate the appropriate placement of the Windows 95, Intel, and OmniBook model labels for each of the three display sizes available.

Table 19 - Display Label Compatibility Matrix

Display Size/Type	OmniBook Model	HP OmniBook Label	Windows 95 Label	OmniBook Model Label	Intel Inside Label
12.1” DSTN SVGA	2000CS	F1065-80005	7121-7353	F1371-60913	5182-5113
12.1” TFT SVGA	2000CT	F1065-80005	7121-7353	F1371-60912	see footnote[5]
11.3” DSTN SVGA	5500CS	F1065-80005	7121-7353	F1320-60969	5182-5113
10.4” TFT SVGA 12.1” TFT SVGA	5500CT	F1065-80005	7121-7353	F1320-60970	5182-5113
12.1” TFT SVGA	5700CT	F1065-80005	7121-7353	F1350-60917	7121-7455
12.1” TFT XGA	5700CTX	F1065-80005	7121-7353	F1350-60918	7121-7455

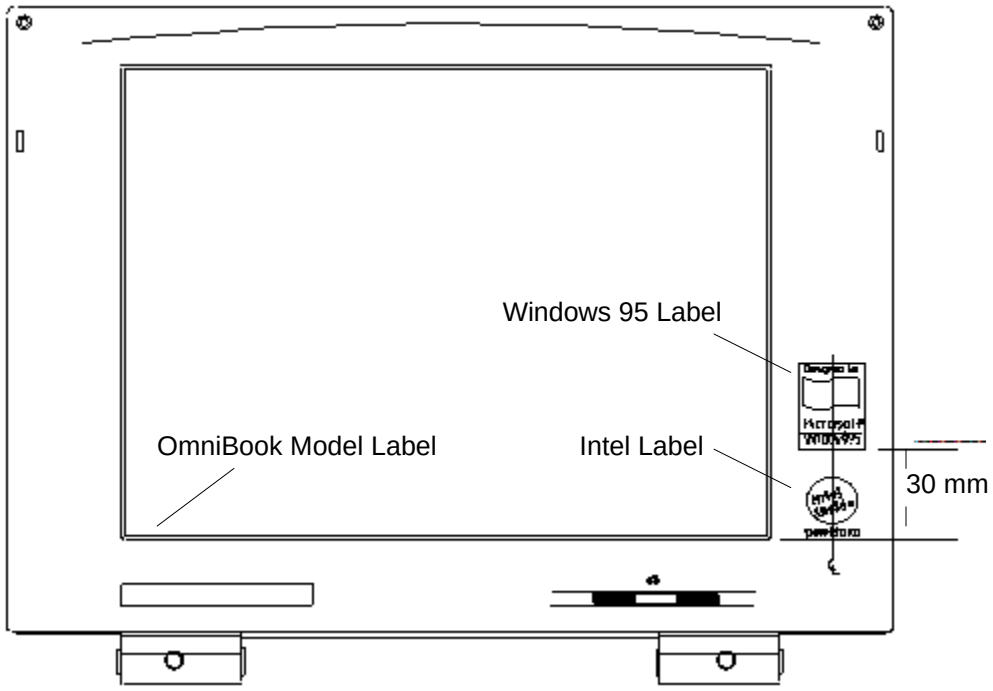

Figure 29 - 10.4" Display Label Placements

[5] 7121-7455 for OmniBook with MMX Technology, 5182-5113 for OmniBook without MMX Technology

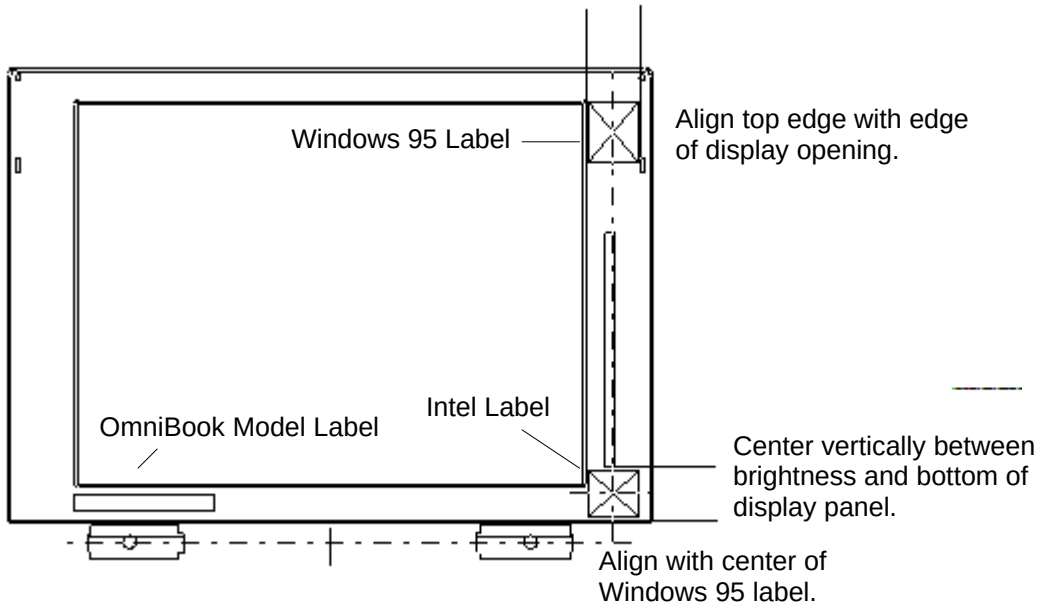

Figure 30 - 11.3" Display Label Placements

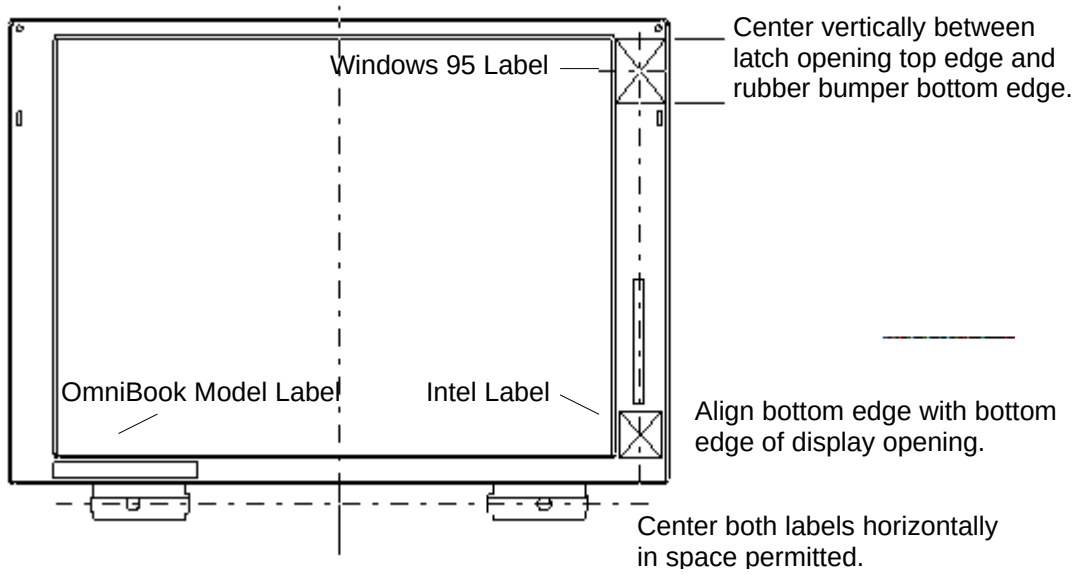

Figure 31 - 12.1" Display Label Placements

Keyboard
(HP Authorized Service Providers Only)

Required Equipment
- Small phillips screwdriver

Removal Procedure
1. Exit all applications, including Windows.
2. Turn the OmniBook off and remove the battery and ac adapter.
3. Follow the Hard Disk Drive Removal Procedure on page 67 and the Floppy Disk Drive Removal Procedure on page 69 to remove these components.
4. Remove the four Palmrest Screws (see Figure 32 for the location of the screws – Note, the Display is shown removed for illustrative purposes; it is not necessary for the repair procedure).

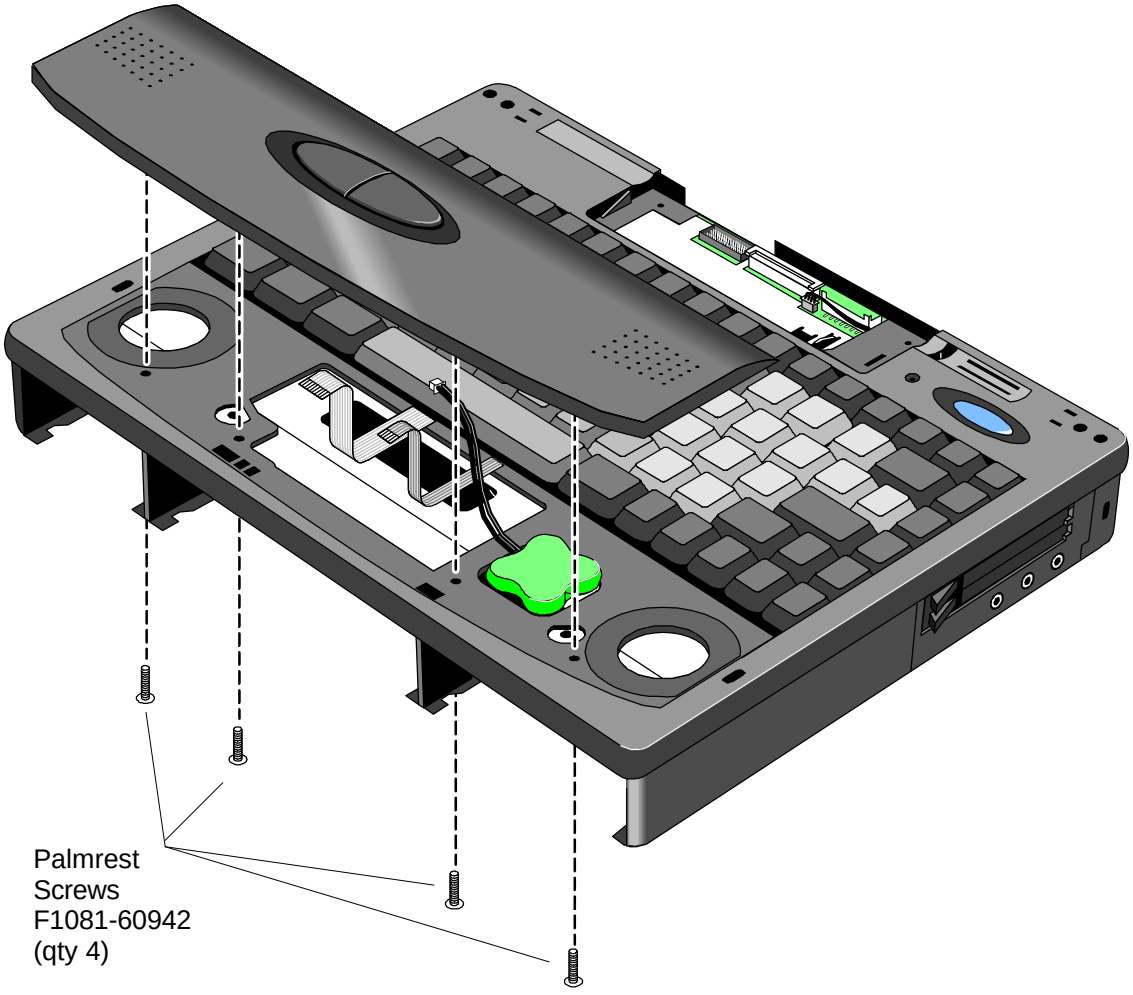

Figure 32 - Palmrest Assembly Removal

5. Flex the center of the Palmrest Assembly to release the side-tabs. Disconnect the Keyboard Flex cable. The other two cables can remain in place, or disconnect to fully remove the Palmrest Assembly.
6. Remove the four Keyboard Screws (see Figure 33 for the location of the screws).

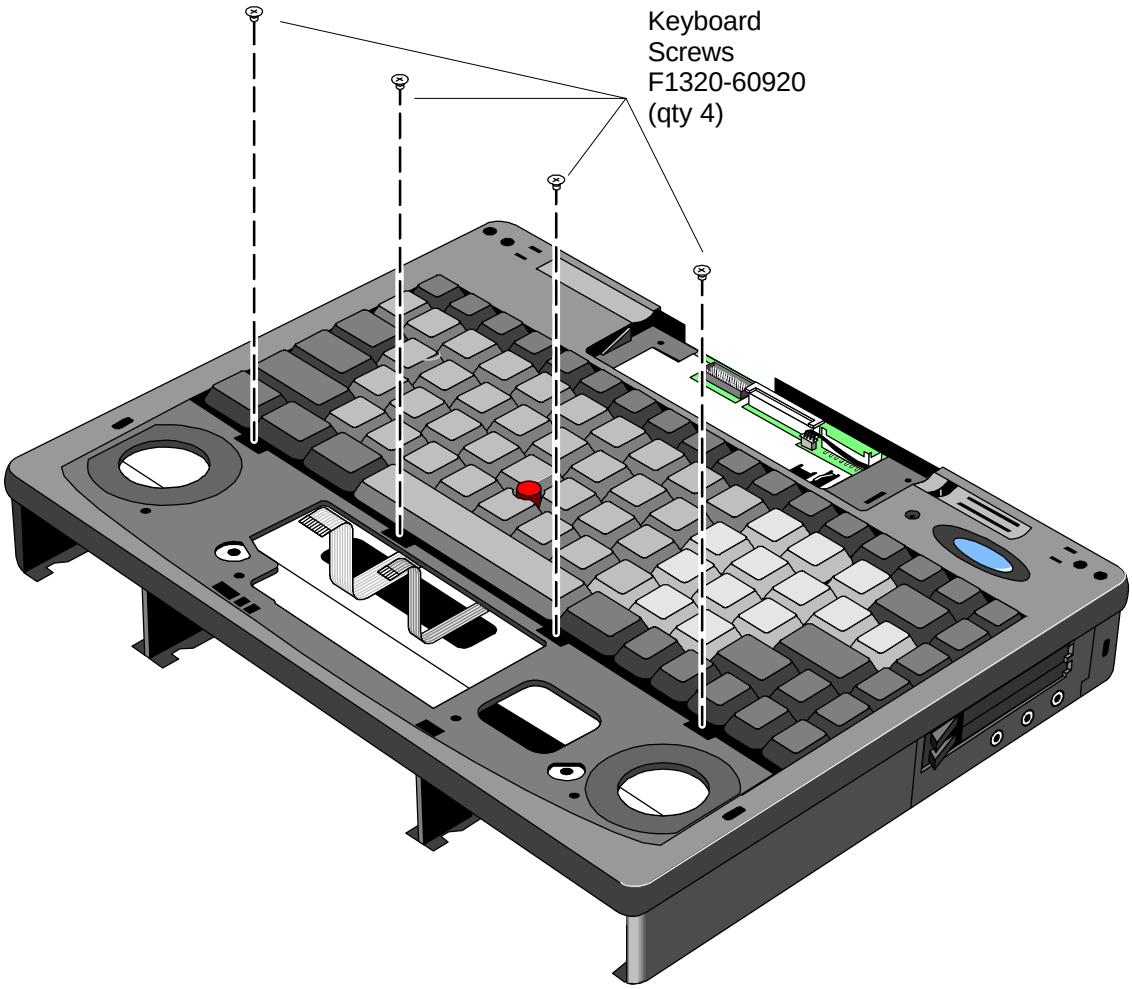

Figure 33 - Keyboard Screws

7. Lift up the Keyboard – be sure to thread the Keyboard Flex Cable underneath the plastic of the Upper Chassis Case.
8. To remove the Keyboard further, the DC Power Supply Board must be removed. Pull up **evenly** on both tabs of the Power Board. See Figure 34.

CAUTION: Applying uneven pressure when removing the Power Board may cause damage to the connector pins.

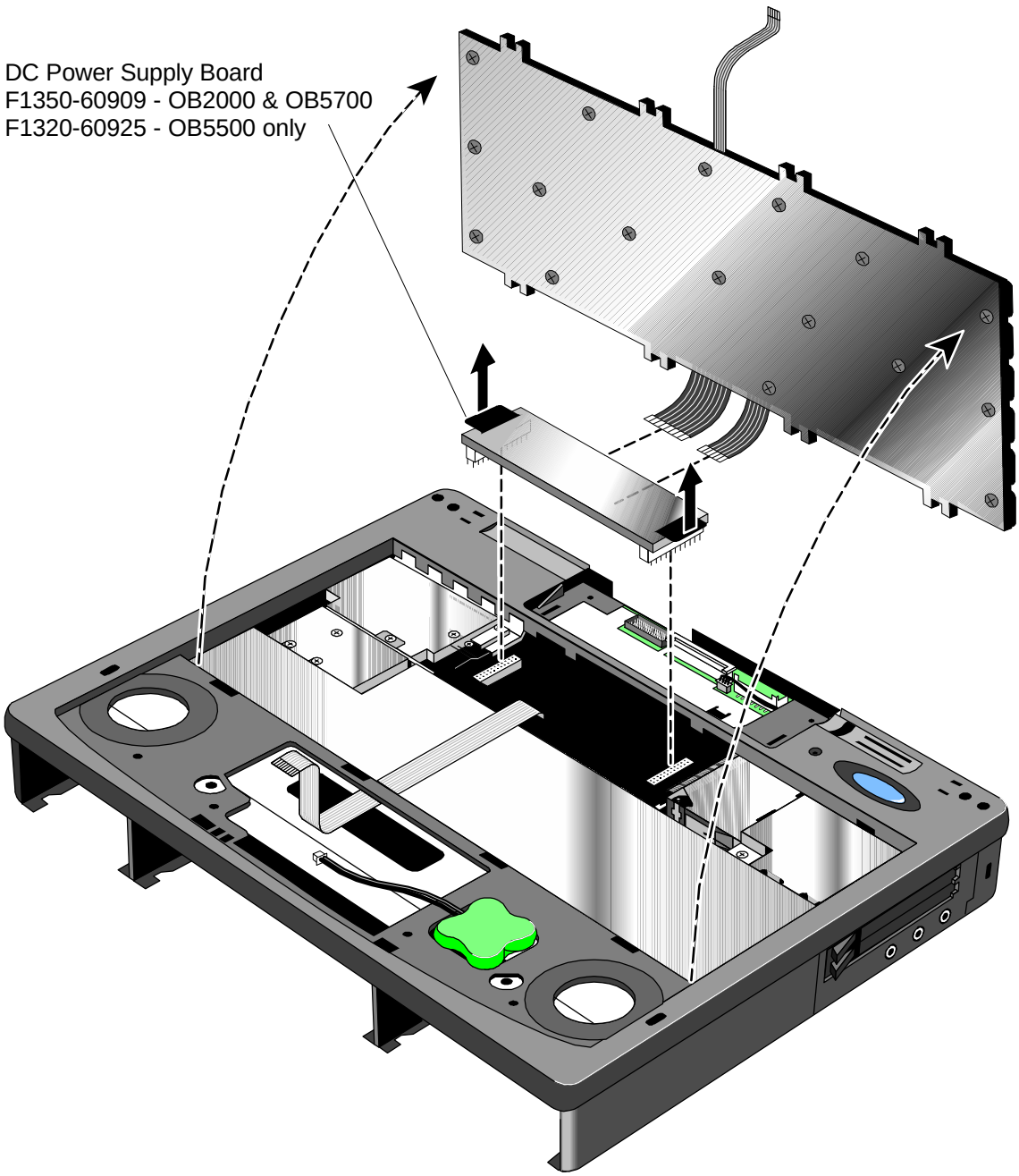

Figure 34 - Keyboard Removal

9. Disconnect the two flex cables from the Power Board.

Replacement Procedure

1. Reverse the above Removal Procedure. Take note to properly thread the Keyboard Flex Cable underneath the plastic of the Upper Chassis Case.

Icon Board (PCA PB-ICON)
(HP Authorized Service Providers Only)

The table below lists the icon boards compatible with the OmniBook 2000, 5500, and 5700. Note the column indicating the matching LCD type (**the icon boards and LCD types must *not* be mismatched**). There are no exchange part numbers for any of the icon boards.

Table 20 - Icon Board Compatibility Matrix

Icon Board	Part Number	OB2000	OB5500	OB5700	LCD Type/Mfg.	LCD Part #[6]
PCA PT-ICON	F1320-60924		✓		All/Hitachi	see footnote[7]
PCA PT-ICON/SMG	F1320-60993		✓		12.1 TFT/Samsung	F1320-69094
PCA PB-ICON/SVGA	F1350-60907	✓		✓	SVGA TFT	F1320-69094 F1320-69006
PCA PB-ICON/XGA	F1350-60908			✓	XGA TFT	F1350-69002
PCA PB-ICON/DSTN	F1371-60911	✓			DSTN	F1371-69006

Required Equipment
- Small phillips screwdriver

Removal Procedure
1. Exit all applications, including Windows.
2. Turn the OmniBook off and remove the battery and ac adapter.
3. Follow the Display Removal Procedure on page 71 and the Keyboard Removal Procedure on page 74 to remove these components.
4. Remove the Upper Chassis Case Screw and disconnect the On/Suspend Button and Microphone Cables. Lift the Upper Chassis from the base of the unit. See Figure 35.

[6] Also refer to Table 18 - Display Compatibility Matrix on page 71
[7] F1320-69004 for 10.4" TFT, F1320-69005 for 11.3" DSTN, and F1320-69006 for 12.1" TFT

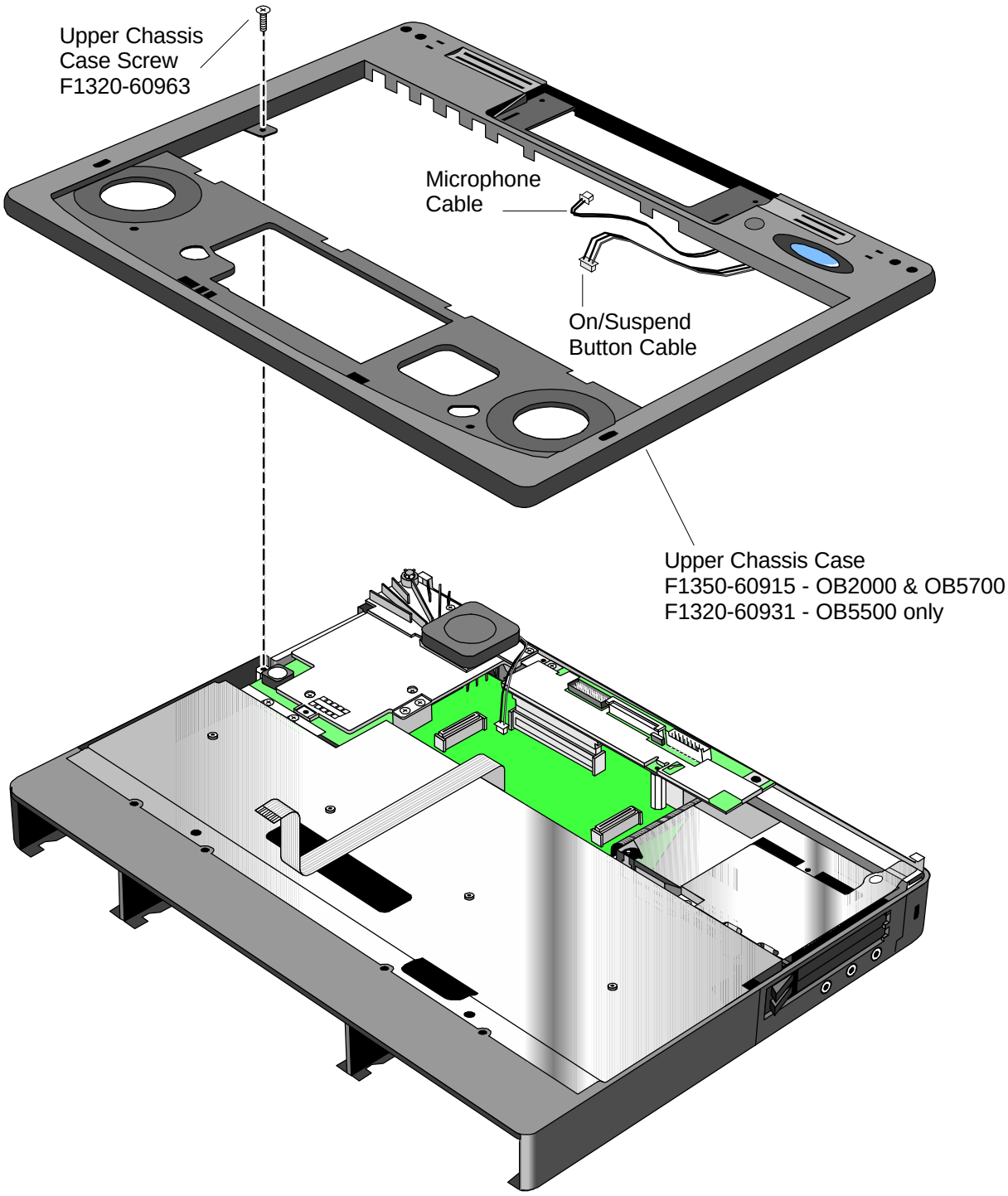

Figure 35 - Upper Chassis Case Removal

5. Remove the Icon Board Screw (see Figure 36). Gently rock the Icon Board back and forth to free it from the connector.

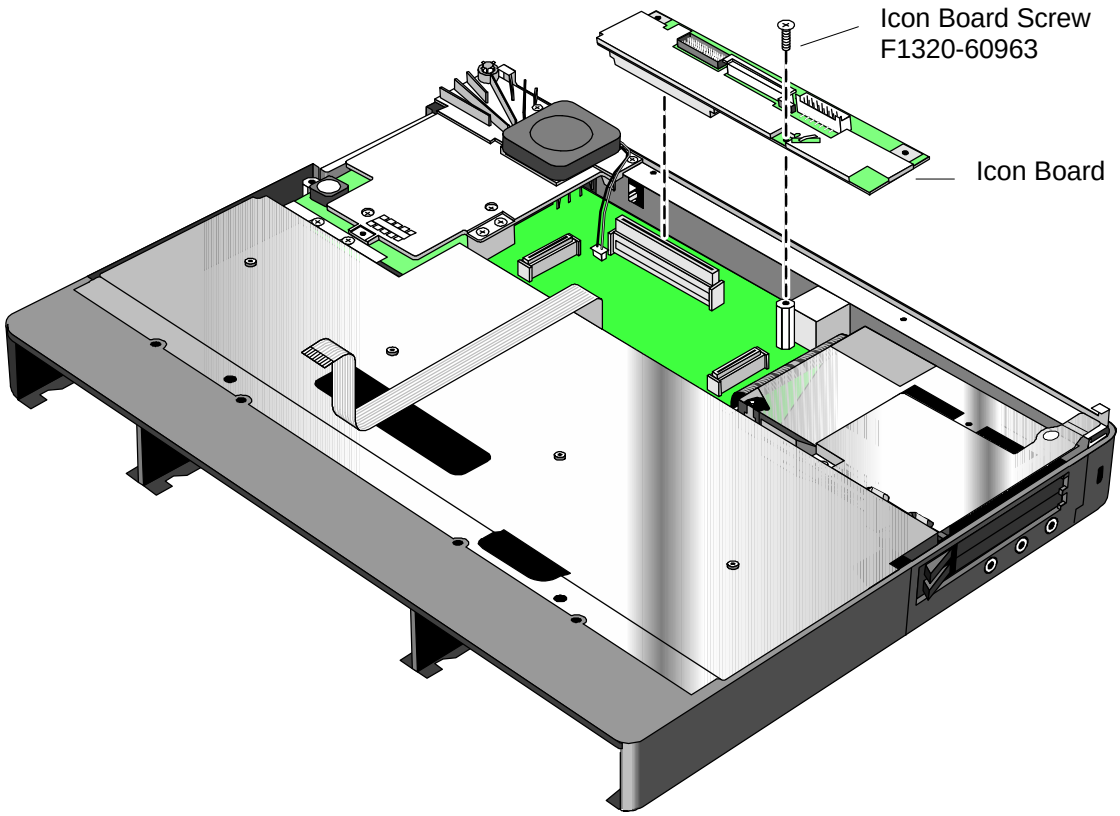

Figure 36 - Icon Board Removal

Replacement Procedure

1. Reverse the above Removal Procedure.

CPU Module
(HP Authorized Service Providers Only)

The following table lists the various CPU modules for the OmniBook 2000, 5500, and 5700.

Table 21 - CPU Module Compatibility Matrix

CPU Module	Part Number	Exchange Part #	OB2000	OB5500	OB5700
100C	F1320-60901	F1320-69001		✓	
120C	F1320-60902	F1320-69002		✓	
133C	F1320-60903	F1320-69003		✓	
150C (MMX)	F1350-60904	F1350-69004			✓
166C (MMX)	F1350-60905	F1350-69005			✓
P54C-133	F1371-60908	F1371-69008	✓		
P55C-133 (MMX)	F1371-60909	F1371-69009	✓		

Required Equipment
- Small phillips screwdriver

Removal Procedure
1. Exit all applications, including Windows.
2. Turn the OmniBook off and remove the battery and ac adapter.
3. Follow the Display Removal Procedure on page 71 and the Keyboard Removal Procedure on page 74 to remove these components.
4. Remove the Upper Chassis Case Screw and disconnect the On/Suspend Button and Microphone Cables. Lift the Upper Chassis Case from the base of the unit. See Figure 35 on page 80.

5a. **For the OmniBook 2000 and 5700, follow these steps:**
   1) Remove the two CPU Screws (see Figure 37 on page 83 for the location of the screws) and disconnect the CPU Fan Cable.
   2) Gently rock the CPU Module back and forth to remove.
   3) Remove the two CPU Fan Screws and the CPU Fan (see Figure 37 for the location of the screws).

5b. **For the OmniBook 5500, follow these steps:**
   1) Remove the two Heat Spreader Screws and lift away the Heat Spreader. Refer to Figure 38 on page 84.
   2) Remove the one Heat Pipe Bracket Screw and lift away the Heat Bracket.
   3) Very carefully lift the Heat Pipe from the Keyboard Shielding Plate. **Do not bend the Heat Pipe as this will decrease its effectiveness.**
   4) Remove the two Heat Sink Screws and the four CPU Screws. Gently rock the CPU back and forth to remove.

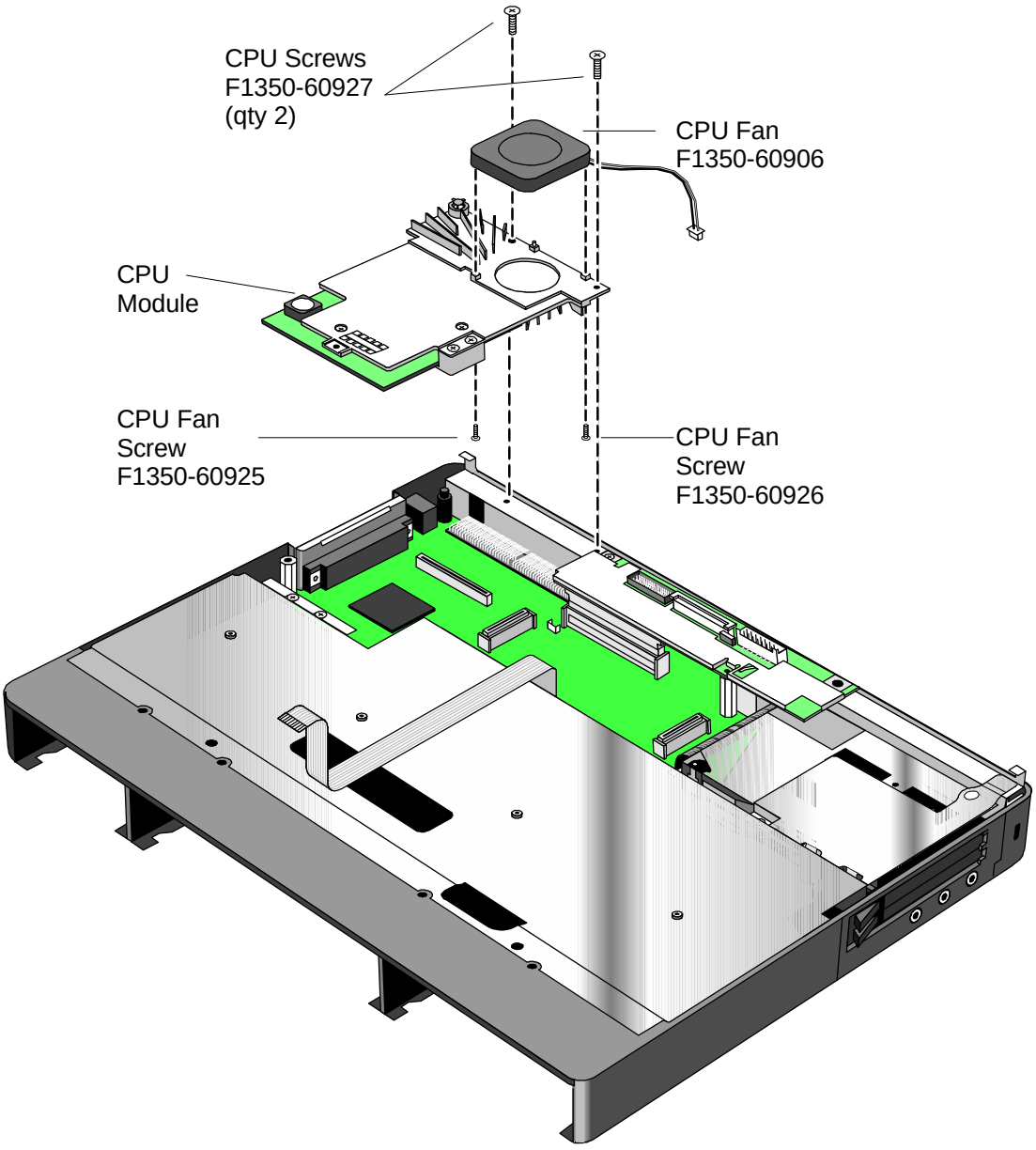

Figure 37 - CPU and CPU Fan Removal (OB2000 & OB5700 only)

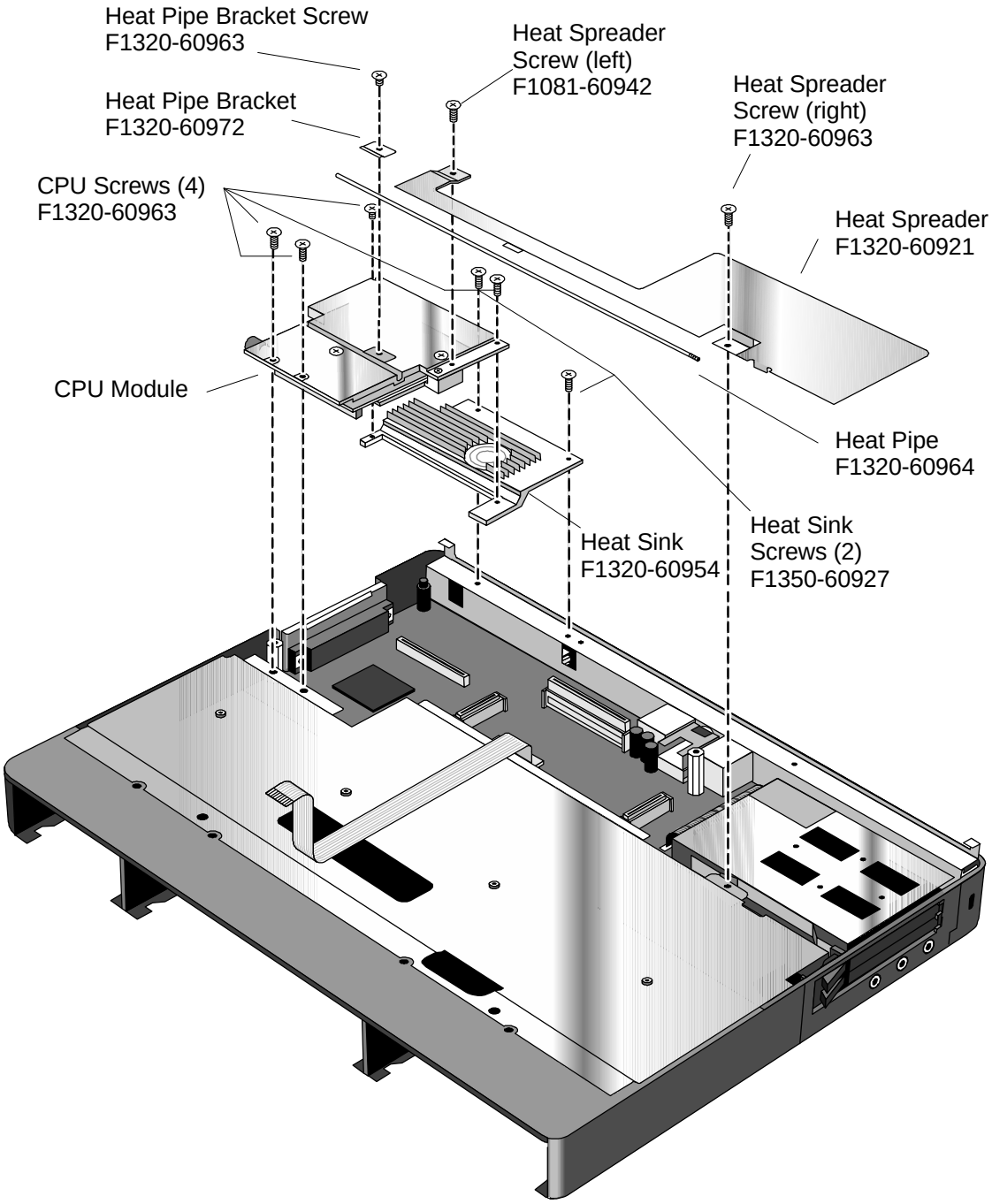

Figure 38 - CPU and Heat Spreader Removal (OB5500 only)

Replacement Procedure

1. Reverse the above Removal Procedure

Logic PCA Board (PCA PB-586/IO Bracket)
(HP Authorized Service Providers Only)

The OmniBook 2000 and 5700 are shipped with an electronic serial number programmed in EEPROM on the Logic PCA Board. This built-in serial number will help MIS managers in tracking assets and software configuration. Serial numbers can also be used for security and in tracking lost or stolen notebooks. The Desktop Management Interface (DMI) TopTools application shipped with the OmniBook can be used to read the serial number locally and across a network (requires HP OpenView network administration software architecture).

Programming the Electronic Serial Number

All replacement Logic PCA Boards will arrive without a serial number programmed in EEPROM. The following procedure provides the steps necessary to program the electronic serial number

1. After installation of the replacement Logic PCA Board and upon reboot, the OmniBook will halt with this prompt:
   INVALID ELECTRONIC SERIAL NUMBER
   PRESS ANY KEY TO CONTINUE
2. After a key is pressed, the OmniBook will continue a normal boot process. The HP Authorized Service Provider must program a valid serial number before the OmniBook can be shipped to the customer.
3. Boot the OmniBook to the DOS command-line an run the ESN.EXE program located in the c:\omnibook\diag directory.
4. The ESN program will prompt for a valid serial number.
5. Enter the serial number located on the bottom of the OmniBook. Use uppercase letters to be consistent with the appearance of the serial number on the OmniBook. The ESN program will burn the serial number into EEPROM.

Overriding an Incorrect Electronic Serial Number

If an incorrect serial number is inadvertently burned into EEPROM, it can be corrected. Perform the following steps:

1. Run the ESN.EXE program located in the c:\omnibook\diag directory.
2. The ESN program will prompt to confirm that the serial number is incorrect. It will then generate a five (5) digit number key.
3. The HP Authorized Service Provider must contact Hewlett-Packard Technical Support at this point.
4. HP Technical Support will ask for a CZ authorization number, or comparable credentials, and the five (5) digit number (from step 2).
5. HP Technical Support will provide a validation key to the HP Authorized Service Provider.
6. Enter the validation key. This will erase the existing electronic serial number and prompt for a new number.
7. Follow the above steps in **Programming the Electronic Serial Number** to enter the correct serial number.

Note, updating the BIOS or software on the OmniBook will **not** affect the electronic serial number.

The following table summarizes the different logic PCA boards for the OmniBook 2000, 5500, and 5700.

Table 22 - Logic PCA Compatibility Matrix

Logic PCA	Part Number	Exchange Part #	OB2000	OB5500	OB5700
PCA PT-586 with I/O Bracket	F1320-60926	F1320-69026		✓	
PCA PB-586 with I/O Bracket	F1350-60901	F1350-69001	✓		✓

Required Equipment

- Small phillips screwdriver
- 5mm hexdriver

Removal Procedure

1. Exit all applications, including Windows.
2. Turn the OmniBook off and remove the battery, ac adapter. For the OmniBook 2000 and 5700 only, remove the Logic PCA Screw (see Figure 39 for location).

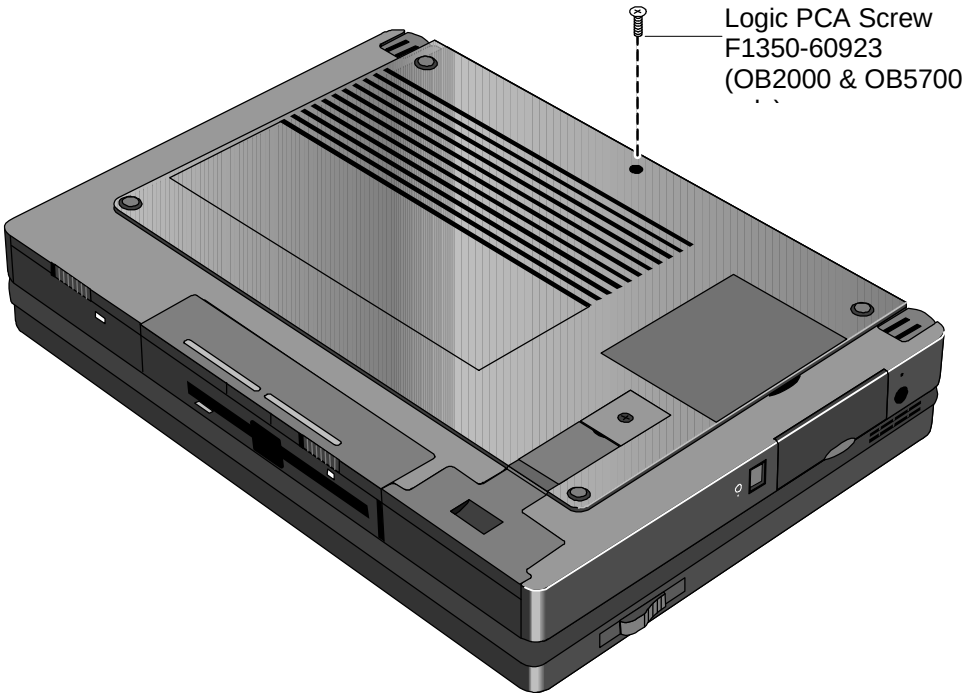

Figure 39 - Additional Screw for Logic PCA Removal

3. Follow the CPU Module Removal Procedure on page 85 and the Icon Board Removal Procedure on page 79 to gain access to the Logic PCA Board.
4. Now remove the Card Bus Bracket (OB2000 & OB5700 only) then the Keyboard Shielding Plate (five screws). See Figure 40 on page 87 for location of the screws.

5. To remove the Logic PCA Board from the Lower Chassis Case, three screws, two standoffs, the FFC Cable T/B to M/B, and the HDD-FPC Flex must first be removed. See Figure 41 on page 88 for the location of these components. The IR Lens and Bezel are now accessible.

CAUTION: Apply even pressure to both sides of the HDD FPC Flex when removing or replacing to avoid damage to the connector pins on the Logic PCA.

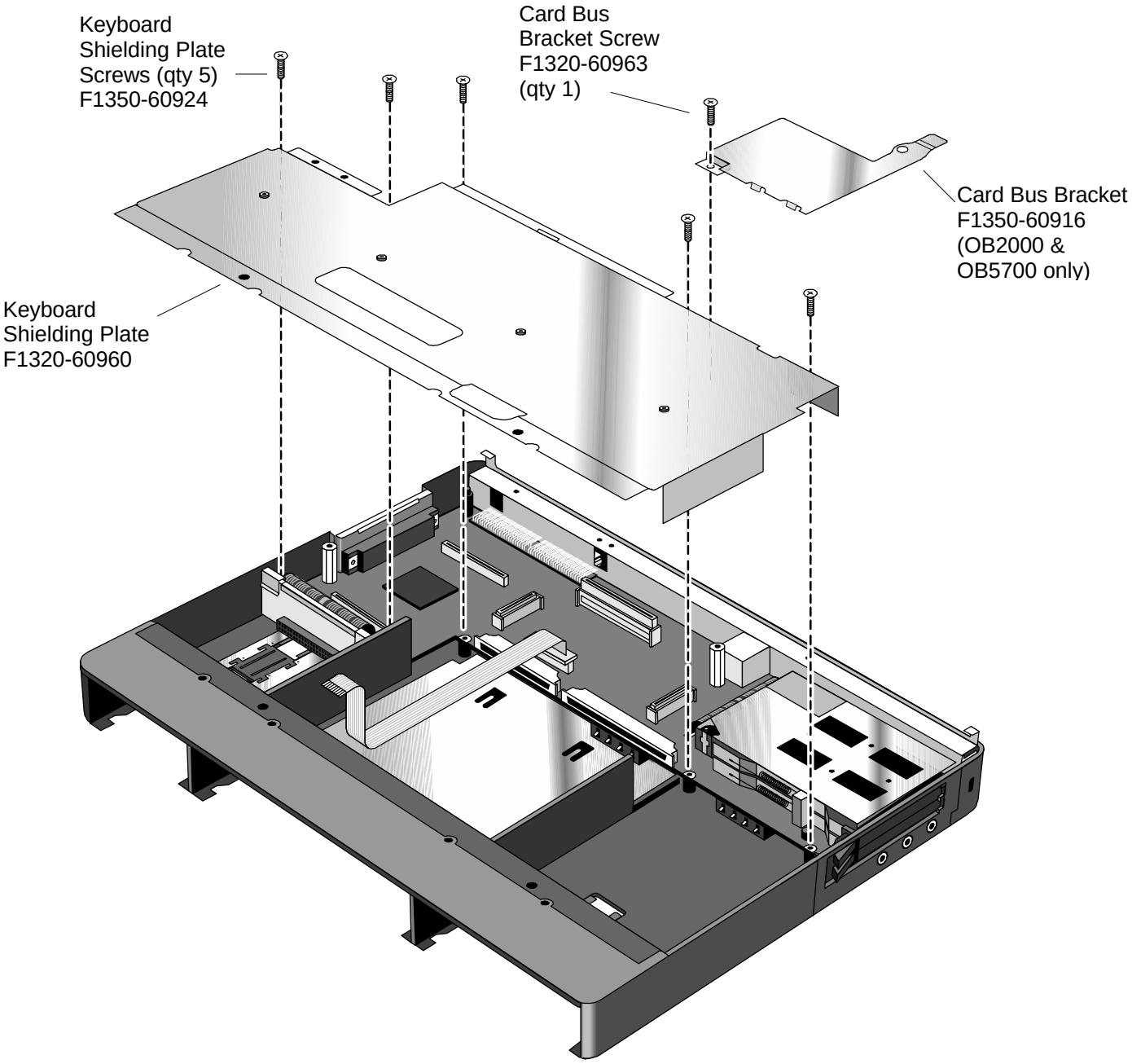

Figure 40 - Keyboard Shielding Plate Removal

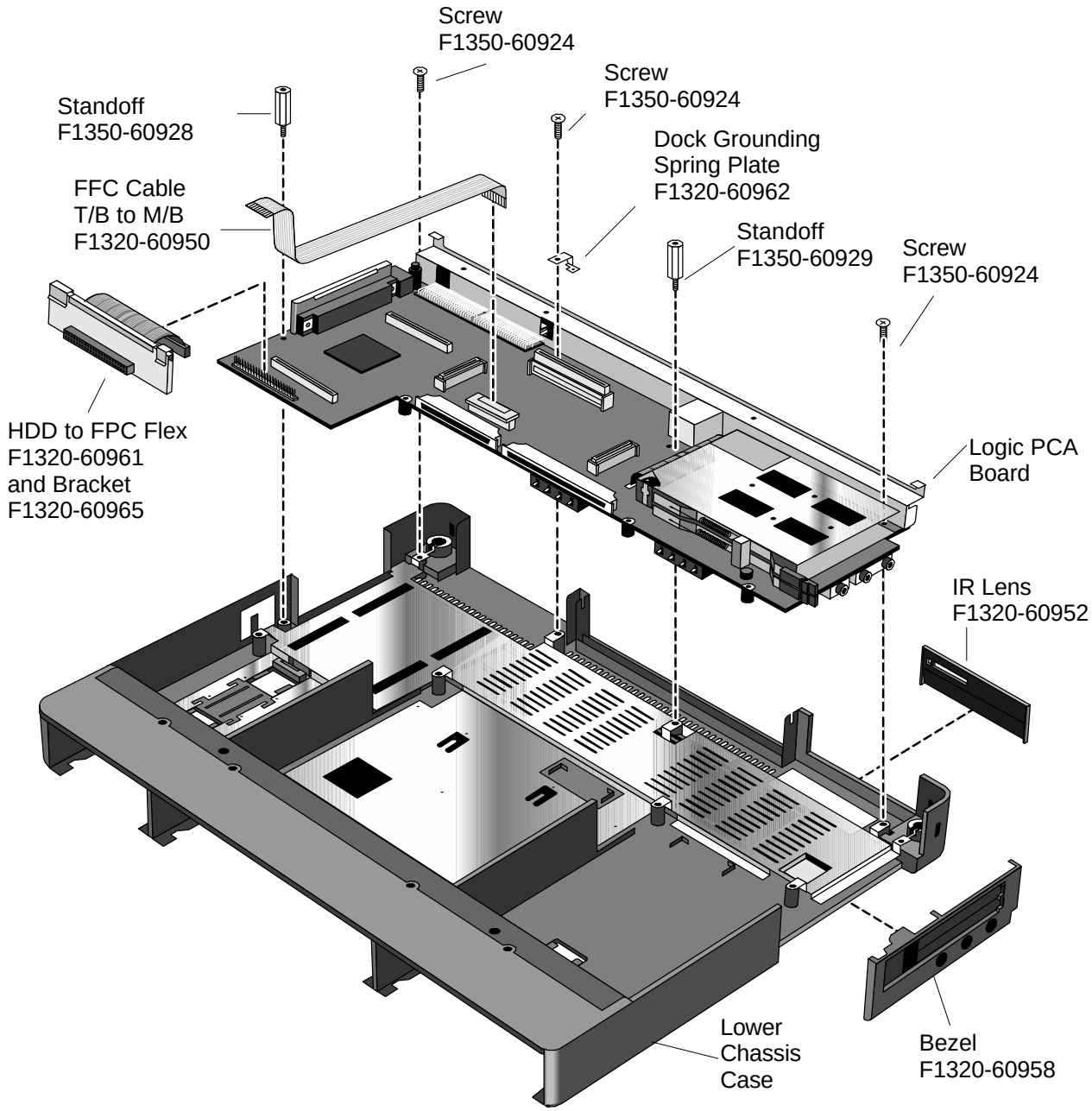

Figure 41 - Logic PCA Board Removal

Replacement Procedure

1. Reverse the above Removal Procedure.

Programmable Flash BIOS IC
(HP Authorized Service Providers Only)

The replacement BIOS IC will contain enough basic BIOS programming to boot the OmniBook. However, after replacing the IC, the BIOS must be reprogrammed. Hewlett-Packard prefers that the system is programmed with the latest BIOS for the respective OmniBook. The latest BIOS can be downloaded from the WWW (see Table 1 - Additional Resources on page vi).

Required Equipment

- Small phillips screwdriver
- 5mm hexdriver (OB5500 and OB5700 only)
- BIOS Insertion/Removal Tool (F1371-60904)

Removal Procedure

1. Exit all applications, including Windows.
2. Turn the OmniBook off and remove the battery and ac adapter.

3a. **For the OmniBook 5700[8] and 5500**, follow the Logic PCA Board Removal Procedure to gain access to the BIOS IC. Turn the Logic PCA over and proceed with step four (4) below.

3b. **For the OmniBook 2000**, remove the Flash BIOS Door as shown in Figure 42.

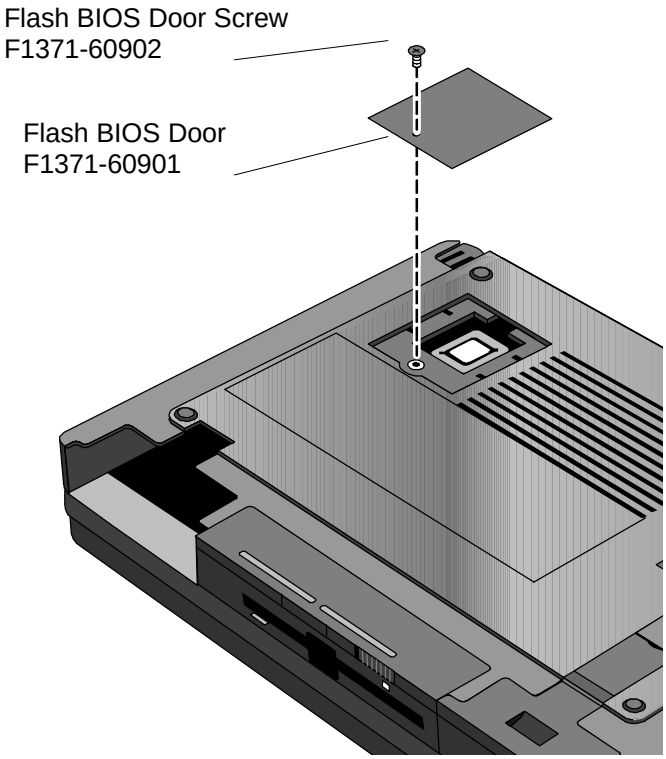

Figure 42 - Flash BIOS Door Removal

[8] At a later date, the OmniBook 5700 will be compatible with the OmniBook 2000's Lower Chassis Case. At that time, removal of the Logic PCA will not be necessary to gain access to the Flash BIOS IC; it will be accessible via the Flash BIOS Door as seen in Figure 42.

4. Use a BIOS Insertion/Removal Tool to extract the BIOS IC from the Logic PCA. See Figure 43 on page 90.

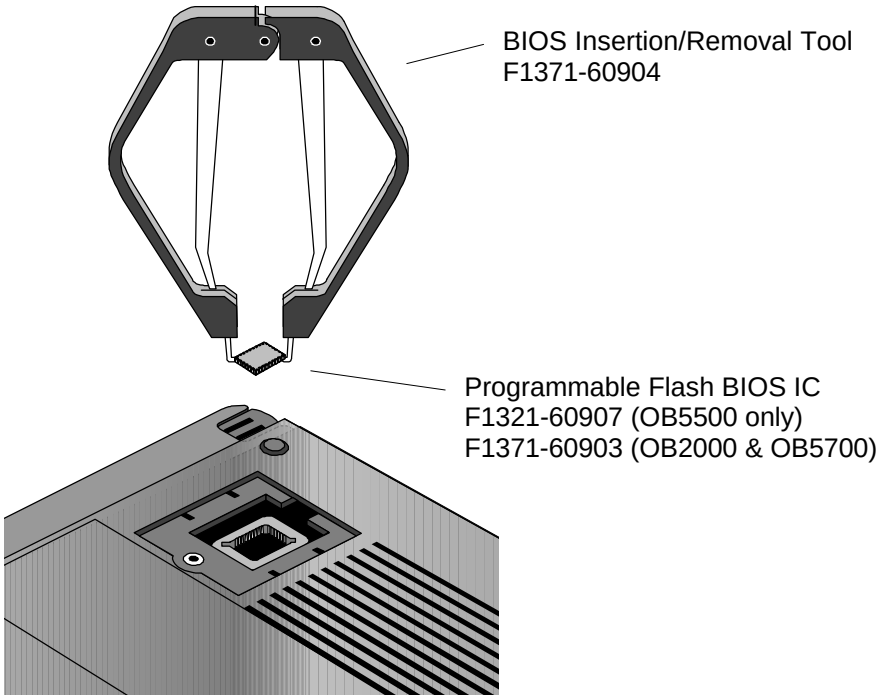

Figure 43 - Flash BIOS IC Removal

Replacement Procedure

1. Align the Flash BIOS IC with the slot on the Logic PCA. The IC is keyed to fit correctly.
2. Press down firmly on the IC to ensure a proper connection. See Figure 44.
3. Replace the remainder of the OmniBook components.

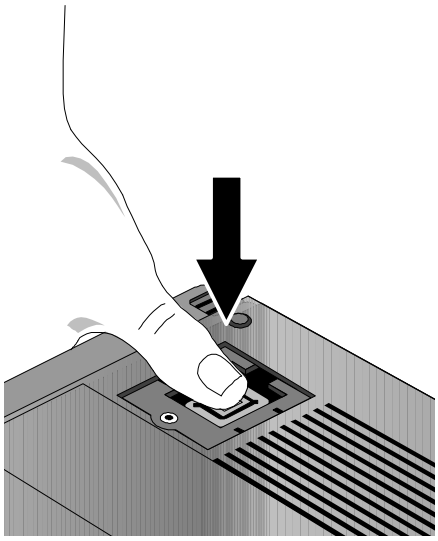

Figure 44 - Replacing the Flash BIOS IC

Video Memory (OB2000 & OB5700 Only)
(HP Authorized Service Providers Only)

NOTE: Only the OmniBook 2000 and 5700 contain video memory that is replaceable. This repair procedure is not applicable for the OmniBook 5500.

Also be aware that the Video Memory Board contains only 1MB of the total 2MB of video RAM on the system. The other 1MB of video RAM is integrated with the Logic PCA Board. Therefore, to replace *all* of the video RAM, the Logic PCA Board must be replaced (the replacement logic PCA will contain a new video RAM board).

Required Equipment
- Small phillips screwdriver
- 5mm hexdriver

Removal Procedure
1. Exit all applications, including Windows.
2. Turn the OmniBook off and remove the battery and ac adapter.
3. Follow the Logic PCA Board Removal Procedure on page 85 to gain access to the Video Memory.
4. Remove the one necessary screw on the Logic PCA Board. See Figure 45.
5. Rock the Video Memory Board gently back and forth to remove.

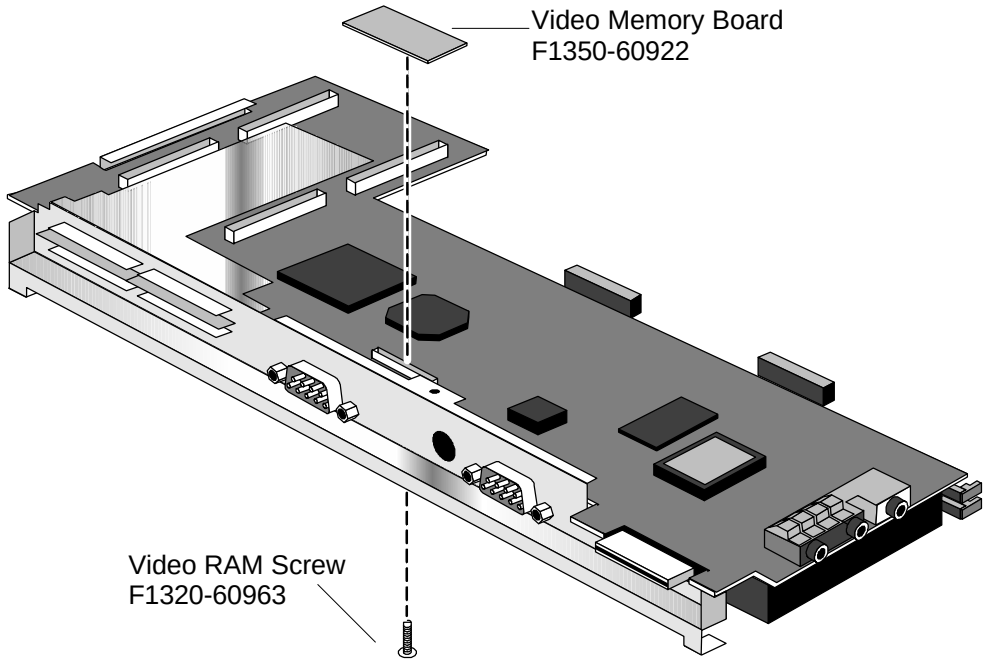

Figure 45 - Video Memory Removal

Replacement Procedure

1. Reverse the above Removal Procedure.

Other Components and Accessories
(HP Authorized Service Providers Only)

The below table lists additional replaceable components and the disassembly procedure(s) necessary to gain access to each. The accessories require a unit exchange (no repairable parts), unless otherwise indicated.

Table 23 - Other Repairable Components and Accessories

Component	Disassembly Procedure(s)/page#	Equipment	Special Notes
Bezel	Logic PCA Board - page 85	Small phillips screwdriver, 5mm hexdriver	
Card Bus Bracket	Display - page 71 Keyboard - page 74	Small phillips screwdriver	The Upper Chassis must also be removed.
CD-ROM Drive			The CD-ROM Drive contains no repairable components. A unit exchange is required.
CPU Fan	CPU Module - page 82	Small phillips screwdriver	
DC Power Supply Board	Keyboard - page 74	Small phillips screwdriver	
Dock Grounding Spring Plate	Icon Board - page 79	Small phillips screwdriver	Remove the one screw holding the Spring in place.
Docking System			The Docking System (F1189) does contain repairable components. Refer to the F1189-90008 manual for instructions.
EMI Spring for LCD Hinge	Display - page 71 Keyboard - page 74	Small phillips screwdriver	The Upper Chassis must also be removed. The Hinge simply slips out of its socket.
FFC Cable T/B to M/B	Keyboard - page 74	Small phillips screwdriver	
HDD PCB Bracket	Display - page 71 Keyboard - page 74	Small phillips screwdriver	The Upper Chassis, Keyboard Shielding Plate, and Card Bus Bracket must also be removed.
HDD-FPC Flex	Display - page 71 Keyboard - page 74	Small phillips screwdriver	The Upper Chassis, Keyboard Shielding Plate, and Card Bus Bracket must also be removed.
Heat Pipe	CPU Module - page 82	Small phillips screwdriver	
Heat Pipe Bracket	CPU Module - page 82	Small phillips screwdriver	
Heat Pipe Spreader	CPU Module - page 82	Small phillips screwdriver	
Heat Sink	CPU Module - page 82	Small phillips screwdriver	

Component	Disassembly Procedure(s)/page#	Equipment	Special Notes
I/O Bracket Grounding Clips	Logic PCA Board - page 85	Small phillips screwdriver, 5mm hexdriver	The Clips easily slide off either side of the Logic PCA Board.
Icon Assembly	Display - page 71	Small phillips screwdriver	The Display does not need to be completely removed.
IR Lens	Logic PCA Board - page 85	Small phillips screwdriver, 5mm hexdriver	
Keyboard Shielding Plate	Display - page 71 Keyboard - page 74	Small phillips screwdriver	The Upper Chassis and Card Bus Bracket must also be removed.
Lower Chassis Case	Logic PCA Board - page 85	Small phillips screwdriver, 5mm hexdriver	
Palmrest Assembly	Keyboard - page 74	Small phillips screwdriver	The Keyboard does not need to be completely removed.
Port Replicator			The Port Replicator contains no repairable components. A unit exchange is required.
Sub Battery	Keyboard - page 74	Small phillips screwdriver	The Sub Battery is accessible once the Palmrest is lifted up.
Upper Chassis Case	Display - page 71 Keyboard - page 74	Small phillips screwdriver	Remove the one screw and disconnect the On/Suspend and Microphone Cables.

Appendix A - Technical Specifications

Mass Storage Specifications

Hard Disk Drive

The hard disk drive can be removed by the user for easy upgrades.

Hard drive manufacturers are subject to change without notice.

Table 24 - Hard Disk Drive Specifications

	810-million-byte	1.35-billion-byte	1.44-billion-byte	2.1-billion-byte	3.1-billion-byte
Manufacturer	Toshiba	Toshiba	Toshiba	Toshiba	Toshiba
Interface	ATA2	ATA2	ATA2 /ATA3	ATA2 /ATA3	ATA2 /ATA3
Recording Method	PRML (Partial Response Maximum likelihood)	PRML (Partial Response Maximum likelihood)	PRML (Partial Response Maximum likelihood)	PRML (Partial Response Maximum likelihood)	PRML (Partial Response Maximum likelihood)
Heads	Peak Detect	MR (Magneto Resistive)	MR (Magneto Resistive)	MR (Magneto Resistive)	MR (Magneto Resistive)
Average access (read)	13 ms	13 ms	13 ms	13 ms	13 ms
Track to track seek	3 ms	3 ms	3 ms	3 ms	3 ms
Full Track	25 ms	25 ms	25 ms	25 ms	25 ms
Average latency	7.14 ms	7.14 ms	7.14 ms	7.4 ms	6.18 ms
Rotational speed	4200 rev/m	4200 rev/m	4200 rev/m	4200 rev/m	4852 rev/m
Media Transfer rate	24.7 (inner), 44.9 (Outer) Mbits/sec	38.1 (inner), 54.8 (Outer) Mbits/sec	38.6 (inner), 69.8 (Outer) Mbits/sec	38.6 (inner), 69.8 (Outer) Mbits/sec	43.8 (inner), 68.9 (Outer) Mbits/sec
Buffer to host	16.6 Mbytes/sec	16.6 Mbytes/sec	16.6 Mbytes/sec	16.6 Mbytes/sec	16.6 Mbytes/sec
Buffer size	128KB (read and write segmented buffer)	128KB (read and write segmented buffer)	128KB (read and write segmented buffer)	128KB (read and write segmented buffer)	128KB (read and write segmented buffer)
Spindle start time	5 sec (typical)	5 sec (typical)	5 sec (typical)	5 sec (typical)	5 sec (typical)
Reliability:					
MTBF: Power-on Hours	300,000 hours	300,000 hours	300,000 hours	300,000 hours	300,000 hours
Unrecoverable errors	1.0E-13 bits transfer	1.0E-13 bits transfer	1.0E-13 bits transfer	1.0E-13 bits transfer	1.0E-13 bits transfer
Configuration:					
Sector Size	512 Bytes	512 Bytes	512 Bytes	512 Bytes	512 Bytes
User Cylinders	2,920	3,650	5,160	5,160	5,020
Data Heads	6	6	4	6	10
Disks	3	3	2	3	5

Floppy Disk Drive

The floppy disk drive can either be placed in the center bay slot or connected to the parallel port. It is hot-swappable and is configured as drive A by default.

Floppy disk drive manufacturers are subject to change without notice.

Table 25 - Floppy Disk Drive Specifications

	3.5-inch Floppy Drive	
Manufacturer	TEAC	
Data Capacity	1.44MB (formatted) 2M (unformatted)	724KB (formatted) 1M (unformatted)
Data Transfer Rate	500k bits/sec	250k bits/sec
Disk Rotational Speed	300rpm	
Track Density	135tpi	
Cylinders	80	
Track-to-track Time	3ms	
Average Seek Time	94ms	
Start Time	480ms	
Average latency	100ms	
Mean Time Between Failures	30,000 hours	
Error Rate		
Soft (recoverable)	1 or less per 10^9 bits read	
Hard (unrecoverable)	1 or less per 10^{12} bits read	
Seek	1 or less per 10^6 bits read	

CD-ROM Drive

The CD-ROM Drive is an accessory to the OmniBook. It is designed to operate only in the center bay.

CD-ROM drive manufacturers are subject to change without notice.

Table 26 - CD-ROM Drive Specifications

	6x CD-ROM Drive	10x CD-ROM Drive
Manufacturer	Toshiba	Toshiba
Transfer Rate	900K sustained	1710 KB/sec max
Buffer	128K	128K
Access Speed	190ms	150ms
Start-up Time	2.3 s (6x)	2.3 s (10x)
Seek Time	160ms	130ms
Modes	CDROM (Mode 1&2), Photo CD, CD Plus, CDXA, CD-I, Multisession	CDROM (Mode 1&2), Photo CD, CD Plus, CDXA, CD-I, Multisession

System Resources

Below are default values for system resources. To see other, non-default possibilities, use the System Configuration Utility (SCU) which lists port and audio device configurations in the Input/Output menu. For additional information on configuring system resources, refer to the System Configuration Utility section on page 48.

The tables in this section show typical resource usage as set up by the OmniBook BIOS. Plug-and-play operating systems, drivers, and SCU settings may change some of the entries.

System Interrupts

The following tables list the available interrupts for the OmniBook 2000, 5500, and 5700.

Table 27 - System Interrupts for the OmniBook 2000 and 5700

0	System timer
1	Keyboard
2	Redirect IRQ 9
3	COM2 (IR) and COM4 (free in Win95 when docked)
4	COM1 and COM3 (serial port)
5	Crystal sound
6	Floppy drive
7	LPT1 (parallel port)
8	Real-time clock
9	MIDI
10	PCI-type interrupt: CardBus (undocked) / SCSI (docked)
11	Free
12	Mouse
13	Coprocessor
14	Internal hard disk (primary IDE controller)
15	Internal CD-ROM (secondary IDE controller)

Table 28 - System Interrupts for the OmniBook 5500

0	System timer
1	Keyboard
2	Redirect IRQ 9
3	COM2 (serial IR) and COM4 (free in Win95 when docked)
4	COM1 and COM3 (serial port)
5	Crystal sound
6	Floppy drive
7	LPT1 (parallel port)
8	Real-time clock
9	MIDI
10	Fast IR (undocked)/AMD SCSI (docked)
11	Free
12	Mouse
13	Coprocessor
14	Internal hard disk (primary IDE controller)

15	Internal CD-ROM (secondary IDE controller, free if no internal CD)

System Memory

The following tables list the memory maps for the OmniBook 2000, 5500, and 5700.

Table 29 - System Memory Map for the OmniBook 2000 and 5700

C0000-CAFFF	Chips & Technologies video BIOS
CB000-CBFFF	Enhanced parallel port BIOS
CC000-CFFFF	Free
D0000-D1FFF	TI1131 PC Card Controller
D2000-E7FFF	Free
E8000-FFFFF	Plug-and play ISA, PCI, and System BIOS

Table 30 - System Memory Map for the OmniBook 5500

C0000-C9FFF	Chips & Technologies video BIOS
CA000-CAFFF	Enhanced parallel port BIOS
CB000-CFFFF	Free
D0000-D1FFF	Cirrus Logic PC Card Controller
D2000-E7FFF	Free
E8000-EDFFF	Plug-and play BIOS
EE000-EFFFF	Plug-and-Play ISA
F0000-FFFFF	System BIOS

System Input/Output Addresses

The following tables list the available I/O addresses for the OmniBook 2000, 5500, and 5700.

Table 31 - System I/O Addresses for the OmniBook 2000 and 5700

15C-15D	Super I/O in Docking System
170-178	Secondary HDD controller (internal CD-ROM)
1F0-1F7	Internal hard disk
200-201	Joystick
220-22F	Crystal sound
2F8-2FF	COM2 (infrared port)
330-331	MPU 401 (MIDI)
378-37A	LPT1 (printer port)
388-38B	Sound
3B0-3BB	VGA adapter
3C0-3DF	VGA adapter
3E0-3E1	PC card bridge on PCI
3F0-3F5	Floppy controller
3F6	Primary HDD controller
3F8-3FF	COM1 (serial port)
400-47F	SCSI host controller
3000-300F	IDE but mastering registers
6000-6FFF	PC CardBus
8000-8FFF	PC CardBus

Table 32 - System I/O Addresses for the OmniBook 5500

170-178	Secondary HDD controller (internal CD-ROM)
1F0-1F7	Internal hard disk
220-22F	Crystal sound
2F8-2FF	COM2 (infrared port)
330-331	MPU 401 (MIDI)
378-37A	LPT1 (printer port)
388	Sound
3C0-3DF	VGA adapter
3E0-3E1	PC card bridge on PCI
3F0-3F5	Floppy controller
3F6	Primary HDD controller
3F8-3FF	COM1 (serial port)
3000-33FF	VGA on PCI
3400-347F	SCSI on PCI
3E0H-3E1H	PC Card on ISA

DMA Channels

The following tables lists the available DMA channels for the OmniBook 2000, 5500, and 5700.

Table 33 - DMA Channels for the OmniBook 2000 and 5700

0	Sound record
1	Sound playback
2	Floppy drive
3	Fast IR
4	DMA controller
5	Free
6	Free
7	Free

Table 34 - DMA Channels for the OmniBook 5500

0	Free
1	Sound playback
2	Floppy drive
3	Sound record
4	Free
5	Free
6	Free
7	Free

Appendix B - Hewlett-Packard Password Removal Policy

If the user forgets the system password, there is a master password that will unlock the OmniBook. The user calls Technical Support to determine this master password as follows:

1. Support will tell the user the keys to type at the password entry screen: [alt][shft][f10]
2. The OmniBook generates and displays an encoded master password. This is displayed under the normal password entry area. At this point, this is the only password that will unlock the OmniBook unless the user presses [ESC] to remove the encoded master from the password entry screen. Then the user's stored password can be entered.
3. The user reads the encoded master password to Support.
4. Support runs a program that decodes the encoded password, and reads the decoded password (alphanumeric) to the user.
5. The user types in the decoded password.
6. OmniBook decodes the encoded master password it generated and compares it to the decoded password typed in by the user.
7. If the two passwords match, the OmniBook is unlocked. The forgotten password is automatically erased. Support can then guide the user through the process of entering a new password.
8. If the two passwords do not match, the previous sequence must be repeated until the user correctly enters a master password.

The encoded master password is an eight-character alphanumeric sequence that the OmniBook generates at random every time the appropriate keys are pressed in the password entry screen. Because it is generated randomly, a master password can only be used to unlock the OmniBook once. If the user forgets the password at another time, it will require another call to Support. (If the user presses the appropriate keys by mistake, pressing [ESC] will allow entering the stored password.)

The password descramble programs for the HP OmniBook Notebook PCs are protected as HP Company Private information. They may not be copied, backed-up, printed or distributed. There are only six official copies of each program.

In addition to the program being protected, its use is also controlled. Hewlett-Packard and authorized support providers must ensure with written evidence that the OmniBook that is being "descrambled" is actually in the hands of the unit's actual and current owner. This requires a sales receipt showing the unit serial number and owner's name, or a written statement from the owner attesting that he or she is the owner of the unit. The statement can be a fax copy of the document. The fact that the unit is in the hands of an HP representative on behalf of the customer is not evidence of ownership. In addition, HP will not descramble a unit for any non-owner, even if it involves

law enforcement agencies. If you receive such a request, you should notify management and HP Corporate Legal immediately. (These requests may require a court order prior to our participation.)

Further, you must log the name, serial number and date of the running of the descramble program, and file the written backup with the log. The log and backup are subject to standard record retention process and review.

The final issue relating to descramble of passwords is that HP cannot provide information to users that would assist them in improperly descrambling a password and opening a unit.

Appendix C - Hewlett-Packard TFT Display Quality Statement

TFT display manufacturing is a high precision but imperfect technology and manufacturers cannot currently produce large displays that are cosmetically perfect. Most, if not all, TFT displays will exhibit some level of cosmetic imperfection. These cosmetic imperfections may be visible to the customer under varying display conditions and can appear as bright, dim or dark spots. *This issue is common across all vendors supplying TFT displays in their products and is not specific to the HP OmniBook display.*

HP OmniBook TFT displays meet or exceed all TFT manufacturers' standards for cosmetic quality of TFT displays. HP does not warrant that the displays will be free of cosmetic imperfections. *TFT displays may have a small number of cosmetic imperfections and still conform to the display manufacturers' cosmetic quality specifications.*

Here are some guidelines to use in determining what action to take on customers' complaint of cosmetic imperfection in their TFT display:

1. The unit should be viewed in the customer's normal operating condition.
   This means if the customer uses the unit predominately in DOS, or Windows, or in some other application or combination of applications, that is where the determination shall be made. Self test is not a normal operating condition and is not a sufficient tool to interpret display quality.

2. In the customer's normal operating mode:
   a) If 4 or more variant pixels appear clustered in the area approximated by a thumbprint on the display surface, then the display should be considered for replacement.
   b) On OmniBook 4000CT models, if more than 30 total pixels anywhere on the display are bad, then the display should be considered for replacement. On all other OmniBook models, if more than 15 total pixels anywhere on the display are bad, then the display should be considered for replacement.

These are the only conditions in this guideline that may call for a replacement due to a defect in material or workmanship based on the HP Limited Warranty Statement.

3. If a display is considered for replacement, it should be clear to the customer that cosmetic variations on the replacement display may also exist, and may require the customer to use a work-around to obscure the cosmetic imperfection.

4. Customers with cosmetic-based complaints only, that do not conform to the above conditions and tests will not normally be considered for display replacement. It will be left to the judgment of the HP-responsible person working with the customer, to identify work-arounds that are reasonable and appropriate for the individual customer. Customers who must have a more perfect display solution should consider switching to an OmniBook with a DSTN display.

We expect over time that the industry will continue to improve in its ability to produce displays with fewer inherent cosmetic imperfections and we will adjust our HP guidelines as the improvements are implemented.

Appendix D - Assembly Sub-Component Breakout

The following pages contain a breakout of various sub-components of the major replaceable assemblies for the OmniBook 2000, 5500, and 5700. The chart indicates whether or not the sub-component is included with the replacement assembly. For example, a replacement hard disk drive does not include a hard drive plastic kit. The plastic kit from the defective hard drive may be reused or a new plastic kit may be ordered separately.

This chart is indented to aid in determining which components need to be ordered when replacing an assembly of the OmniBook. However, in the continuing effort to improve the exchange process, this information may change without notice.

Assembly		OmniBook			Sub-component(s)		Included (y/n)
		2000	5500	5700			
CPU Module							
CPU Module/100C	F1320-60901		✓		Heat Sink	F1320-60954	No
CPU Module/120C	F1320-60902		✓		Heat Sink	F1320-60954	No
CPU Module/133C	F1320-60903		✓		Heat Sink	F1320-60954	No
CPU Module/150C	F1350-60904			✓	CPU Fan	F1350-60906	No
					EMI Spring for LCD Hinge	F1350-60913	Yes
CPU Module/166C	F1350-60905			✓	CPU Fan	F1350-60906	No
					EMI Spring for LCD Hinge	F1350-60913	Yes
CPU Module/P54C-133	F1371-60908	✓			CPU Fan	F1350-60906	No
					EMI Spring for LCD Hinge	F1350-60913	Yes
CPU Module/P55C-133 (MMX)	F1371-60909	✓			CPU Fan	F1350-60906	No
					EMI Spring for LCD Hinge	F1350-60913	Yes
Display - LCD Assembly							
LCD Assy - 10.4" TFT/S	F1320-60904		✓		Disp Panel Plastic 10.4" TFT	F1320-60934	Yes
					Disp Cover Plastic 10.4" TFT	F1320-60935	Yes
					Display Hook- Left	F1320-60938	Yes
					Display Hook - Right	F1320-60939	Yes
					Display Hook - Button (2)	F1320-60940	Yes
					Display Contrast Btn (2)	F1371-60917	Yes
					Flex Cable 10.4" LCD	F1320-60941	Yes
					Label - HP OmniBook	F1065-80005	Yes

Assembly		OmniBook			Sub-component(s)		Included (y/n)
		2000	5500	5700			
					Display Label 5500CT	F1320-60970	Yes
					Label - Intel Pentium	5182-5113	Yes
					Label - Win95	7121-7353	Yes
					Top Rubber Pad (2)	5183-2257	Yes
					Bottom Rubber Pad (2)	5183-2258	Yes
LCD Assy - 11.3" DSTN/S	F1320-60905		✓		Disp Panel Plastic 11.3" DSTN	F1320-60936	Yes
					Disp Cover Plastic 11.3" DSTN	F1320-60937	Yes
					Display Hook- Left	F1320-60938	Yes
					Display Hook - Right	F1320-60939	Yes
					Display Hook - Button (2)	F1320-60940	Yes
					Display Contrast Btn (2)	F1371-60917	Yes
					Flex Cable 11.3" LCD	F1320-60942	Yes
					Label - HP OmniBook	F1065-80005	Yes
					Display Label 5500CS	F1320-60969	Yes
					Label - Intel Pentium	5182-5113	Yes
					Label - Win95	7121-7353	Yes
					Top Rubber Pad (2)	5183-2257	Yes
					Bottom Rubber Pad (2)	5183-2258	Yes
LCD Assy - 12.1" TFT/S	F1320-60906	✓	✓	✓	Disp Panel Plastic 12.1" TFT	F1320-60932	Yes
					Disp Cover Plastic 12.1" TFT	F1320-60933	Yes
					Display Hook- Left	F1320-60938	Yes
					Display Hook - Right	F1320-60939	Yes
					Display Hook - Button (2)	F1320-60940	Yes
					Display Contrast Btn (1)	F1371-60917	Yes
					Flex Cable 12.1" LCD	F1320-60943	Yes
					Label - HP OmniBook	F1065-80005	Yes
					Display Label	see footnote[1]	No
					Label - Intel	see footnote[2]	No

[1] F1371-60912 for OB2000CT, F1350-60917 for OB5700CT, and F1320-60970 for OB5500CT

Assembly		OmniBook			Sub-component(s)		Included (y/n)
		2000	5500	5700			
					Label - Win95	7121-7353	Yes
					Top Rubber Pad (2)	5183-2257	Yes
					Bottom Rubber Pad (2)	5183-2258	Yes
LCD Assy /SMG 12.1" TFT/S	F1320-60994	✓	✓	✓	Disp Panel Plastic /SMG 12.1" TFT	F1320-60996	Yes
					Disp Cover Plastic /SMG 12.1" TFT	F1320-60995	Yes
					Display Hook- Left	F1320-60938	Yes
					Display Hook - Right	F1320-60939	Yes
					Display Hook - Button (2)	F1320-60940	Yes
					Display Contrast Btn (1)	F1371-60917	Yes
					Flex Cable 12.1" /SMG LCD	F1320-60997	Yes
					Label - HP OmniBook	F1065-80005	Yes
					Display Label	see footnote[1]	No
					Label - Intel	see footnote[2]	No
					Label - Win95	7121-7353	Yes
					Top Rubber Pad (2)	5183-2257	Yes
					Bottom Rubber Pad (2)	5183-2258	Yes
LCD Assy 12.1" DSTN	F1371-60906	✓			Disp Panel Plastic 12.1" DSTN	F1371-60914	Yes
					Disp Cover Plastic 12.1" DSTN	F1371-60915	Yes
					Display Hook- Left	F1320-60938	Yes
					Display Hook - Right	F1320-60939	Yes
					Display Hook - Button (2)	F1320-60940	Yes
					Display Contrast Btn (2)	F1371-60917	Yes
					Cable 12.1" DSTN	F1371-60916	Yes
					Label - HP OmniBook	F1065-80005	Yes
					Display Label 2000CS	F1371-60913	No
					Label - Intel Pentium	5182-5113	No
					Label - Win95	7121-7353	Yes
					Top Rubber Pad (2)	5183-2257	Yes
					Bottom Rubber Pad (2)	5183-2258	Yes
LCD Assy 12.1"	F1350-60902			✓	Disp Panel Plastic	F1320-60932	Yes

[2] 5182-5113 for OmniBook without MMX, 7121-7455 for OmniBook with MMX

Assembly		OmniBook			Sub-component(s)		Included (y/n)
		2000	5500	5700			
TFT/X					12.1” TFT		
					Disp Cover Plastic 12.1” TFT	F1320-60933	Yes
					Display Hook- Left	F1320-60938	Yes
					Display Hook - Right	F1320-60939	Yes
					Display Hook - Button (2)	F1320-60940	Yes
					Display Contrast Btn (1)	F1371-60917	Yes
					Cable 12.1” XGA	F1350-60919	Yes
					Label - HP OmniBook	F1065-80005	Yes
					Display Label 5700CTX	F1350-60918	No
					Label - Intel MMX	7121-7455	No
					Label - Win95	7121-7353	Yes
					Top Rubber Pad (2)	5183-2257	Yes
					Bottom Rubber Pad (2)	5183-2258	Yes
Display Panel Plastic							
Display Panel Plastic 12.1” TFT	F1320-60932	✓	✓	✓	Label - Win95	7121-7353	No
					Display Label	see footnote[1]	No
					Label - Intel	see footnote[2]	No
					Display Contrast Btn (1)	F1371-60917	No
					Top Rubber Pad (2)	5183-2257	No
					Bottom Rubber Pad (2)	5183-2258	No
Display Panel Plastic 10.4” TFT	F1320-60934		✓		Label - Win95	7121-7353	No
					Display Label 5500CT	F1320-60970	No
					Label - Intel Pentium	5182-5113	No
					Display Contrast Btn (1)	F1371-60917	No
					Top Rubber Pad (2)	5183-2257	No
					Bottom Rubber Pad (2)	5183-2258	No
Display Panel Plastic 11.3” DSTN	F1320-60936		✓		Label - Win95	7121-7353	No
					Display Label 5500CS	F1320-60969	No
					Label - Intel Pentium	5182-5113	No
					Display Contrast Btn (2)	F1371-60917	No

Assembly		OmniBook			Sub-component(s)		Included (y/n)
		2000	5500	5700			
					Top Rubber Pad (2)	5183-2257	No
					Bottom Rubber Pad (2)	5183-2258	No
Display Panel Plastic/ SMG 12.1” TFT	F1320-60996	✓	✓	✓	Label - Win95	7121-7353	No
					Display Label	see footnote[1]	No
					Label - Intel	see footnote[2]	No
					Display Contrast Btn (1)	F1371-60917	No
					Top Rubber Pad (2)	5183-2257	No
					Bottom Rubber Pad (2)	5183-2258	No
Display Panel Plastic 12.1” DSTN	F1371-60914	✓			Label - Win95	7121-7353	No
					Display Label 2000CS	F1371-60913	No
					Label - Intel	see footnote[2]	No
					Display Contrast Btn (1)	F1371-60917	No
					Top Rubber Pad (2)	5183-2257	No
					Bottom Rubber Pad (2)	5183-2258	No
Display Cover Plastic							
Display Cover Plastic 12.1” TFT	F1320-60933	✓	✓	✓	Label - HP OmniBook	F1065-80005	No
					Display Hook Button (2)	F1320-60940	No
Display Cover Plastic 10.4” TFT	F1320-60935		✓		Label - HP OmniBook	F1065-80005	No
					Display Hook Button (2)	F1320-60940	No
Display Cover Plastic 11.3” DSTN	F1320-60937		✓		Label - HP OmniBook	F1065-80005	No
					Display Hook Button (2)	F1320-60940	No
Display Cover Plastic/ SMG 12.1” TFT	F1320-60995	✓	✓	✓	Label - HP OmniBook	F1065-80005	No
					Display Hook Button (2)	F1320-60940	No
Display Cover Plastic 12.1” DSTN	F1371-60915	✓			Label - HP OmniBook	F1065-80005	No
					Display Hook Button (2)	F1320-60940	No
Hard Disk Drive							
HDD Drive 810MB	F1191-60901		✓		HDD Plastic Kit	F1320-60947	No

Assembly		OmniBook			Sub-component(s)		Included (y/n)
		2000	5500	5700			
HDD Drive 1.35GB	F1192-60901		✓		HDD Plastic Kit	F1320-60947	No
HDD Drive 1.44GB	F1375-60901	✓			HDD Plastic Kit	F1350-60920	No
HDD Drive 2.1GB	F1339-60901	✓		✓	HDD Plastic Kit	F1350-60920	No
HDD Drive 3.1GB	F1348-60901			✓	HDD Plastic Kit	F1350-60920	No
HDD Plastic Kit							
HDD Plastic Kit	F1320-60947		✓		HDD Kit Screws (4)	n/a	Yes
HDD Plastic Kit	F1350-60920	✓		✓	HDD Kit Screws (4)	n/a	Yes
HDD Security Cover	F1320-40001	✓	✓	✓	HDD Door Screw	F1320-60919	No
KBD Shielding Plate	F1320-60960	✓	✓	✓	Screws (5)	F1350-60924	No
Keyboard	see footnote[3]	✓	✓	✓	TrackPoint Cap	F1320-60971	Yes
Lower Chassis Case							
Lower Chassis Case - 5700	F1350-60914			✓	Plastic Foot (2)	F1320-60929	Yes
					Rubber Foot (4)	F1320-60957	Yes
					Business Card Holder	F1065-80017	No
					Back Panel Overlay/Regulatory	F1320-60973	No
					Memory Cover Door	F1320-60927	No
					Printer Port Door	F1125-60918	No
					Expansion Door	F1125-60920	No
					I/O Door	F1350-60910	No
					Bezel	F1320-60958	No
					IR Lens	F1320-60952	No
Lower Chassis Case - 5500	F1320-60930		✓		Plastic Foot (2)	F1320-60929	Yes
					Rubber Foot (4)	F1320-60957	Yes
					Business Card Holder	F1065-80017	No
					Back Panel Overlay/Regulatory	F1320-60973	No
					Memory Cover Door	F1320-60927	No
					Printer Port Door	F1125-60918	No
					Expansion Door	F1125-60920	No
					I/O Door	F1320-60928	No
					Bezel	F1320-60958	No
					IR Lens	F1320-60952	No
Lower Chassis Case - 2000	F1371-60905	✓			Plastic Foot (2)	F1320-60929	Yes
					Rubber Foot (4)	F1320-60957	Yes
					Business Card Holder	F1065-80017	No
					Back Panel	F1320-60973	No

[3] Refer to Appendix E or the Product Support Plan for a full listing of localized keyboards.

Assembly		OmniBook			Sub-component(s)		Included (y/n)
		2000	5500	5700			
					Overlay/Regulatory		
					Memory Cover Door	F1320-60927	No
					Printer Port Door	F1125-60918	No
					Expansion Door	F1125-60920	No
					I/O Door	F1350-60910	No
					Door, Flash BIOS	F1371-60901	No
					Bezel	F1320-60958	No
					IR Lens	F1320-60952	No
Microphone	F1081-60946	✓	✓	✓	Rubber Gasket	n/a	Yes
Palmrest Assembly	F1320-60986	✓	✓	✓	TrackPoint Btns (2)	n/a	Yes
					TrackPoint PCB	n/a	Yes
					Speakers (2)	n/a	Yes
					Sub-battery	see footnote[4]	No
PCA PT-586							
PCA-PT-586 w/IO Bracket	F1320-60926		✓		I/O Bracket Grounding Clip (2)	F1350-60912	Yes
					Prog. Flash BIOS	F1321-60907	Yes
					I/O Bracket	F1320-60948	Yes
					PCMCIA Button Assy (2)	F1320-60949	No
					Dock Grounding Spring Plate	F1320-60962	No
					Foam	n/a	Yes
PCA-PB-586 w/IO Bracket	F1350-60901	✓		✓	I/O Bracket Grounding Clip (2)	F1350-60912	Yes
					Prog. Flash BIOS	F1371-60903	Yes
					Video RAM	F1350-60922	Yes
					Video RAM Screw (1)	F1320-60963	Yes
					I/O Bracket	F1350-60911	Yes
					PCMCIA Button Assy (2)	F1320-60949	No
					Dock Grounding Spring Plate	F1320-60962	No
					Foam	n/a	Yes
Upper Chassis Case							
Upper Chassis Case	F1320-60931		✓		Microphone	F1081-60946	No
					Sub Battery Set 4.8v	F1081-60925	No
					Suspend/Resume Btn	n/a	Yes
					Icon Assembly	F1320-60918	No
					Keyboard	see footnote[3]	No
					Palmrest Assembly	F1320-60986	No
Upper Chassis Case	F1350-60915	✓		✓	Microphone	F1081-60946	No

[4] F1350-60921 for OB2000 & OB5700, F1081-60925 for OB5500 only.

Assembly		OmniBook			Sub-component(s)		Included (y/n)
		2000	5500	5700			
					Sub Battery NiMH	F1350-60921	No
					Suspend/Resume Btn	n/a	Yes
					Icon Assembly	F1320-60918	No
					Keyboard	see footnote[3]	No
					Palmrest Assembly	F1320-60986	No

Appendix E - Part Numbers

Part Number	Exchange Part Number	Description	User Replace.	OB5700	OB2000	OB5500
5182-5113		Label - Intel Pentium	Yes		✓	✓
5183-2257		LCD Assy - Top Rubber Pad	Yes	✓	✓	✓
5183-2258		LCD Assy - Bottom Rubber Pad	Yes	✓	✓	✓
5965-0241		OmniBook Support and Service Booklet	Yes	✓	✓	✓
5965-0262		Service Manual - OB 2000, 5500, & 5700	Yes	✓	✓	✓
7121-7353		Label - B/W Windows 95	Yes	✓	✓	✓
7121-7455		Label - Intel MMX	Yes	✓	✓	
F1065-80005		Label - HP OmniBook	Yes	✓	✓	✓
F1065-80017		Business Card Holder	Yes	✓	✓	✓
F1081-60925		SUB Battery Set 4.8V	No			✓
F1081-60939		Display Chassis Screw	No	✓	✓	✓
F1081-60942		Screw - CPU M2.6 X 6L Palm Rest Screw FTB	No	✓	✓	✓
F1081-60946		Microphone Assy	No	✓	✓	✓
F1125-60918		Printer Port Door	Yes	✓	✓	✓
F1125-60920		Expansion Door	Yes	✓	✓	✓
F1125-60925		Heat Pipe Bracket	No			✓
F1125-60929		Cndct Foam 10x1x20mm	No			✓
F1134-60901	F1134-69001	8MB RAM	Yes	✓	✓	✓
F1135-60901	F1135-69001	16MB RAM	Yes	✓	✓	✓
F1136-60901	F1136-69001	32MB RAM	Yes	✓	✓	✓
F1189-90008		OmniBook 5000/5500 Docking Sys. Fam Guide	Yes	✓	✓	✓
F1191-60901	F1191-69001	HDD Drive 810	Yes			✓
F1192-60901	F1192-69001	HDD Drive 1.35GB	Yes			✓
F1193-60902		Std Li-Ion Battery	Yes	✓	✓	✓
F1194-60902		Enhncd Li-Ion Battery	Yes	✓	✓	✓
F1195-60901		FDD Module Assy	Yes	✓	✓	✓
F1320-40001		HDD Security Cover	Yes	✓	✓	✓
F1320-60901	F1320-69001	CPU Module/100C	No			✓
F1320-60902	F1320-69002	CPU Module/120C	No			✓
F1320-60903	F1320-69003	CPU Module/133C	No			✓
F1320-60904	F1320-69004	LCD Assy-10.4” TFT/S	No			✓
F1320-60905	F1320-69005	LCD Assy-11.3” DSTN/S	No			✓
F1320-60906	F1320-69006	LCD Assy-12.1” TFT/S	No	✓	✓	✓
F1320-60918		Icon Assy	No	✓	✓	✓
F1320-60919		Screw - HDD Door	Yes	✓	✓	✓
F1320-60920		Screw - Keyboard	No	✓	✓	✓

Part Number	Exchange Part Number	Description	User Replace.	OB5700	OB2000	OB5500
F1320-60921		Heat Pipe Spreader	No			✓
F1320-60924		PCA PT-ICON	No			✓
F1320-60925		PCA PT-DC	No			✓
F1320-60926	F1320-69026	PCA PT - 586 with I/O bracket	No			✓
F1320-60927		Memory Cover Door	Yes	✓	✓	✓
F1320-60928		I/O Door	Yes			✓
F1320-60929		Plastic Foot	Yes	✓	✓	✓
F1320-60930		Lower Chassis Case	No			✓
F1320-60931		Upper Chassis Case	No			✓
F1320-60932		Disp Panel Plastic 12.1” TFT	No	✓	✓	✓
F1320-60933		Disp Cover Plastic 12.1” TFT	No	✓	✓	✓
F1320-60934		Disp Panel Plastic 10.4” TFT	No			✓
F1320-60935		Disp Cover Plastic 10.4” TFT	No			✓
F1320-60936		Disp Panel Plastic 11.3” DSTN	No			✓
F1320-60937		Disp Cover Plastic 11.3” DSTN	No			✓
F1320-60938		Display Hook - Left	No	✓	✓	✓
F1320-60939		Display Hook - Right	No	✓	✓	✓
F1320-60940		Display Hook - Button	No	✓	✓	✓
F1320-60941		Flex Cable 10.4” LCD	No			✓
F1320-60942		Flex Cable 11.3” LCD	No			✓
F1320-60943		Flex Cable 12.1” LCD SVGA	No	✓	✓	✓
F1320-60947		HDD Plastic Kit	Yes			✓
F1320-60948		I/O Bracket	No			✓
F1320-60949		PCMCIA Button Asmbly	Yes	✓	✓	✓
F1320-60950		FFC Cable T/B to M/B 10 PIN	No	✓	✓	✓
F1320-60951		Stand Off H=11.75mm	No			✓
F1320-60952		IR Lens	No	✓	✓	✓
F1320-60954		Heat Sink	No			✓
F1320-60955		Stand Off M2X15L	No			✓
F1320-60957		Rubber Foot	Yes	✓	✓	✓
F1320-60958		Bezel	No	✓	✓	✓
F1320-60960		KBD Shielding Plate	No	✓	✓	✓
F1320-60961		HDD-FPC Flex	No	✓	✓	✓
F1320-60962		Dock Grounding Spring Plate	No	✓	✓	✓
F1320-60963		Screw - CPU M2 X 4L	No	✓	✓	✓
F1320-60964		Heat Pipe	No			✓
F1320-60965		HDD PCB Bracket	No	✓	✓	✓
F1320-60966		Thermal Tape PT-586 82C557	No			✓

Part Number	Exchange Part Number	Description	User Replace.	OB5700	OB2000	OB5500
F1320-60967		Thermal Tape PT-586 F65548	No			✓
F1320-60968		Screw ISOFS M3X6L	No			✓
F1320-60969		Display Label 5500CS	Yes			✓
F1320-60970		Display Label 5500CT	Yes			✓
F1320-60971		Trackpoint Cap (Bag of 5)	Yes	✓	✓	✓
F1320-60972		Heat Pipe Bracket	No			✓
F1320-60973		Back Panel Overlay/Regulatory	No	✓	✓	✓
F1320-60974		Keybd2 - US	No	✓	✓	✓
F1320-60975		Keybd2 - Germany	No	✓	✓	✓
F1320-60976		Keybd2 - French	No	✓	✓	✓
F1320-60977		Keybd2 - Spanish	No	✓	✓	✓
F1320-60978		Keybd2 - Italian	No	✓	✓	✓
F1320-60979		Keybd2 - SW	No	✓	✓	✓
F1320-60980		Keybd2 - Danish	No	✓	✓	✓
F1320-60981		Keybd2 - Swe/Fin	No	✓	✓	✓
F1320-60982		Keybd2 - UK	No	✓	✓	✓
F1320-60983		Keybd2 - Nor	No	✓	✓	✓
F1320-60984		Keybd2 - Korean	No			✓
F1320-60985		Keybd2 - French / Canadian	No	✓	✓	✓
F1320-60986		Palmrest2 Assembly	No	✓	✓	✓
F1320-60988		Recovery Kit - FRE	Yes			✓
F1320-60989		Recovery Kit - ITA	Yes			✓
F1320-60990		Recovery Kit - GER	Yes			✓
F1320-60991		Recovery Kit - SPA	Yes			✓
F1320-60993		PCA PT-ICON/SMG	No			✓
F1320-60994	F1320-69094	LCD Assy/SMG 12.1 TFT/S	No	✓	✓	✓
F1320-60995		Disp Cover Plas/SMG 12.1” TFT	No	✓	✓	✓
F1320-60996		Disp Panel Plas/SMG 12.1” TFT	No	✓	✓	✓
F1320-60997		Flex Cable/SMG 12.1” TFT	No	✓	✓	✓
F1321-60901		OB5500 ENG RECVRY V.01 CDROM AND FLOPPY KIT	Yes			✓
F1321-60902		OB5500 FRE RECVRY V.01 CDROM AND FLOPPY KIT	Yes			✓
F1321-60903		OB5500 ITA RECVRY V.01 CDROM AND FLOPPY KIT	Yes			✓
F1321-60904		OB5500 GER RECVRY V.01 CDROM AND FLOPPY KIT	Yes			✓
F1321-60905		OB5500 SPA RECVRY	Yes			✓

Part Number	Exchange Part Number	Description	User Replace.	OB5700	OB2000	OB5500
		V.01 CDROM AND FLOPPY KIT				
F1321-60906		Laptop Grp. Train. Kit	No	✓	✓	✓
F1321-60907		Prog Flash IC, BIOS	No			✓
F1335-60901	F1335-69001	64MB RAM	Yes	✓	✓	
F1336-60901	F1336-69001	6X CD-ROM Assy - 5500	Yes			✓
F1338-60901		External Battery Recharger	Yes	✓	✓	✓
F1339-60901	F1339-69001	HDD Drive 2.0GB	Yes	✓	✓	✓
F1347-60901	F1347-69001	10x CD-ROM Drive	Yes	✓	✓	✓
F1348-60901	F1348-69001	HDD Drive 3.0GB	Yes	✓		
F1349-60901	F1349-69001	Port Replicator - OB2000/5700	Yes	✓	✓	
F1350-60901	F1350-69001	PCA PB-586/IO Bracket	No	✓	✓	
F1350-60902	F1350-69002	LCD Assy 12.1 TFT/X	No	✓		
F1350-60904	F1350-69004	CPU Module/150C	No	✓		
F1350-60905	F1350-69005	CPU Module/166C	No	✓		
F1350-60906		CPU Fan	No	✓	✓	
F1350-60907		PCA PB-ICON/SVGA	No	✓	✓	
F1350-60908		PCA PB-ICON/XGA	No	✓		
F1350-60909		PCA - DC Power Supply	No	✓	✓	
F1350-60910		I/O Door	Yes	✓	✓	
F1350-60911		I/O Bracket	No	✓	✓	
F1350-60912		I/O Bracket Grounding Clip	No	✓	✓	
F1350-60913		EMI Spring for LCD Hinge	No	✓	✓	
F1350-60914		Lower Chassis Case	No	✓		
F1350-60915		Upper Chassis Case	No	✓	✓	
F1350-60916		Card Bus Bracket	No	✓	✓	
F1350-60917		Display Label 5700CT	No	✓		
F1350-60918		Display Label 5700CTX	No	✓		
F1350-60919		XGA Cable 12.1"	No	✓		
F1350-60920		HDD Plastic Kit	Yes	✓	✓	
F1350-60921		Sub Batt - NiMHd	No	✓	✓	
F1350-60922		PCB - 1MB Video RAM	No	✓	✓	
F1350-60923		Screw - ISOF M2.6x6L	No	✓	✓	
F1350-60924		Screw - ISOP M2x6L Nyl	No	✓	✓	
F1350-60925		Screw - FTB M2.6x10L	No	✓	✓	
F1350-60926		Screw - FTB M2.6x8L	No	✓	✓	
F1350-60927		Screw - ISOT M2.6x4L	No	✓	✓	✓
F1350-60928		Standoff-M2x11.75 Nyl	No	✓	✓	
F1350-60929		Standoff-M2x15L Nyl	No	✓	✓	
F1350-60930		Recovery Kit ENG	Yes	✓		
F1350-60931		Recovery Kit FRE	Yes	✓		
F1350-60932		Recovery Kit ITA	Yes	✓		
F1350-60933		Recovery Kit GER	Yes	✓		

Part Number	Exchange Part Number	Description	User Replace.	OB5700	OB2000	OB5500
F1350-60934		Recovery Kit SPA	Yes	✓		
F1350-60935		Recovery Kit SWE	Yes	✓		
F1350-60936		OmniBook 5700 Training Video	Yes	✓		
F1350-90001		Setup Guide OB5700 - English	Yes	✓		
F1350-90002		Setup Guide OB5700 - E,F,I,G,S,P	Yes	✓		
F1350-90003		Setup Guide OB5700 - E,D,Sw,Fn,N	Yes	✓		
F1350-90016		ServiceManual-OmniBook 5700	Yes	✓		
F1371-60901		Door, Flash BIOS	Yes		✓	
F1371-60902		Screw, BIOS Door	Yes		✓	
F1371-60903		Prog Flash IC, BIOS	No		✓	
F1371-60904		BIOS Insert/Removal Tool	No	✓	✓	✓
F1371-60905		Lower Chassis Case	No		✓	
F1371-60906	F1371-69006	LCD Assy 12.1 DSTN	No		✓	
F1371-60908	F1371-69008	CPU Module/P54C-133	No		✓	
F1371-60909	F1371-69009	CPU Module/P55C-133 (MMX)	No		✓	
F1371-60911		PCA PB-ICON/DSTN 12.1	No		✓	
F1371-60912		Display Label, 2000CT	No		✓	
F1371-60913		Display Label, 2000CS	No		✓	
F1371-60914		Disp Panel Plastic 12.1” DSTN	No		✓	
F1371-60915		Disp Cover Plastic 12.1” DSTN	No		✓	
F1371-60916		Disp Cable 12.1” DSTN	No		✓	
F1371-60917		Disp contrast/brightness slider button	Yes	✓	✓	✓
F1375-60901	F1375-69001	HDD Drive 1.44GB	Yes		✓	

HP Part Number
5965-0262